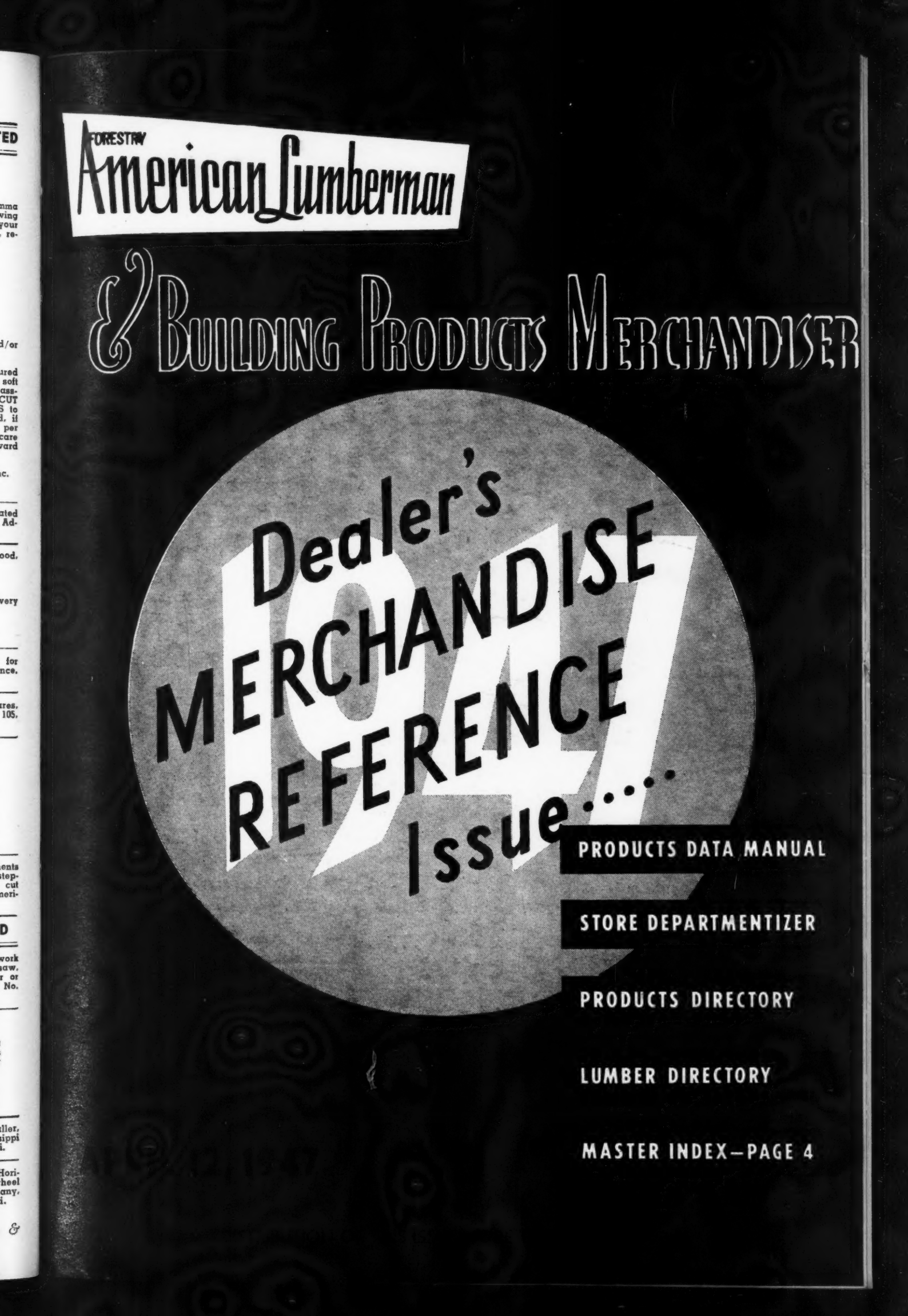
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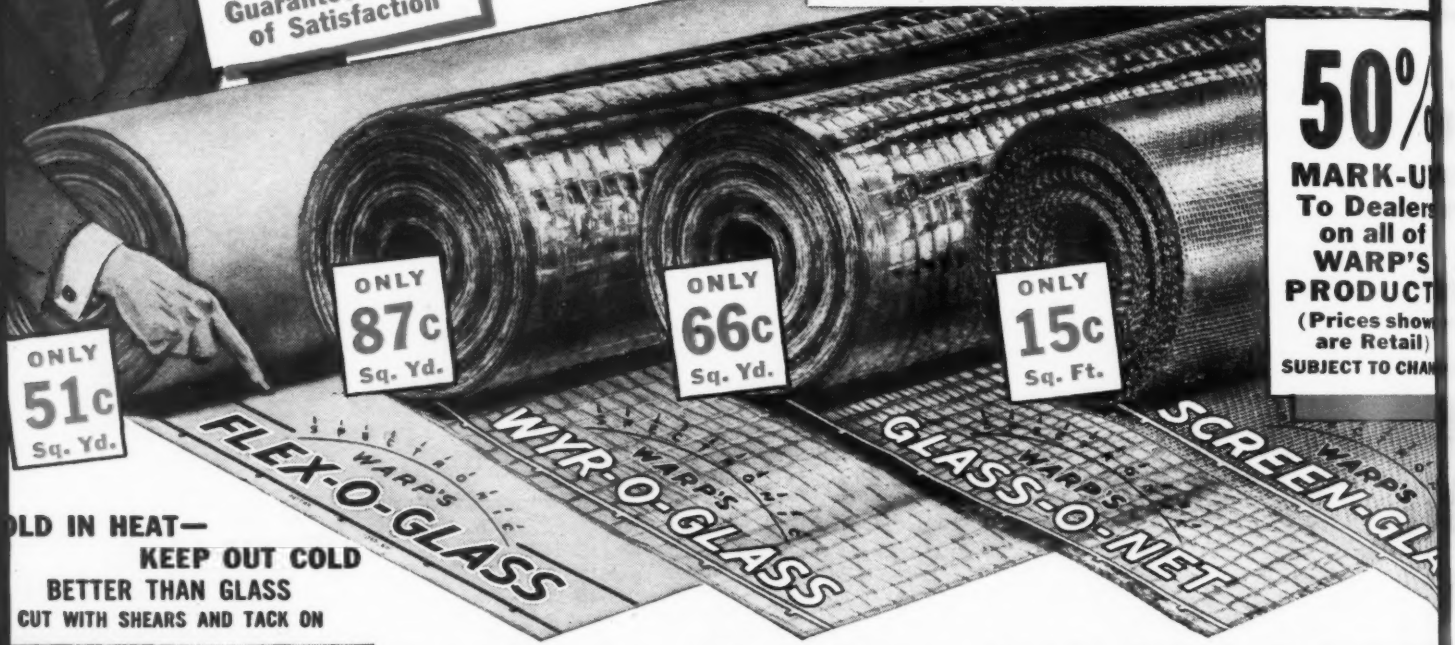
MASTER INDEX—PAGE 4

Only WARP'S SPECTRONIC WINDOW MATERIALS Supply SUPPLEMENT D FROM SUNSHINE - FREE

The name "Warp's" on every yard Guarantees Years of Satisfaction

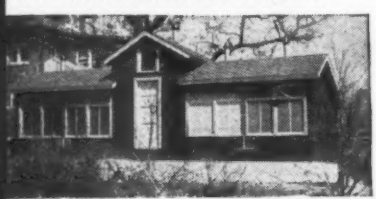
To Help Turn Home-Grown Grains Into Meat and Eggs Quicker—at Less Cost

50% MARK-UP To Dealers on all of WARP'S PRODUCTS (Prices shown are Retail) SUBJECT TO CHANGE



OLD IN HEAT— KEEP OUT COLD BETTER THAN GLASS

CUT WITH SHEARS AND TACK ON



FLEX-O-GLASS

Absolutely Waterproof — Unbreakable. 124 strong, preshrunk threads per square inch. Impregnated with extra high melting point Composition that will not run, discolor or melt in a window. Extra Heavy. Extra Durable. Guaranteed 2 years. Admits lots of healthful Ultra-Violet Rays from the sun.

WYR-O-GLASS

A tough galvanized, fine wire base—¼ inch mesh. Every joint and wire imbedded in a cushion plastic for double reinforcement. Transparent Plastic applied on both sides, fusing everything into one solid weatherproof sheet. Highest Ultra-Violet transmitting and most transparent, flexible Window material on the market.

GLASS-O-NET

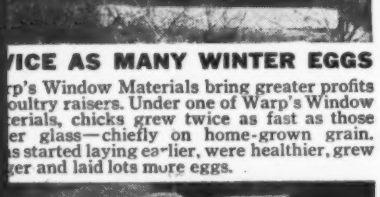
Very transparent. Made on ¼ inch mesh, strong, green Cord base—Every Cord soaked in waterproof Plastic to make a moistureproof seal—and to add greater strength. Transparent Plastic then applied on both sides, sealing everything into one solid weatherproof sheet. Extra high Ultra-Violet transmission.

SCREEN-GL

Fine Mesh Wire Ba… tremely Durable for La… ice. Galvanized wire… cloth imbedded in a so… of exceptionally clear… proof plastic which t… and diffuses over 50% of… Ultra-Violet Rays. … proof, unbreakable and… As flexible as window…

VICE AS MANY WINTER EGGS

…rp's Window Materials bring greater profits … poultry raisers. Under one of Warp's Window …terials, chicks grew twice as fast as those …er glass—chiefly on home-grown grain. …s started laying earlier, were healthier, grew …ger and laid lots more eggs.



0 LB. HOGS IN 100 DAYS!

…s are healthier and grow faster under Warp's …dow Materials. These pigs were farrowed …January, raised in an unheated hoghouse …n Wyr-O-Glass Windows in place of glass— …e never outside. They weighed 110 lbs. in 100 …s, on inexpensive feed.

% FUEL SAVED!

…rp's Window Materials hold in heat and keep … cold better than glass. Tests proved that …rp's Window Material tacked over doors and …dows saved 38% in fuel on this house. It was …mer, more comfortable, freer from drafts.

It pays to handle Warp's Window Materials

When you sell Warp's Window Materials you can be *sure* of a satisfied customer. You can be sure that the material is rugged, and will really stand up. If the customer is a live stock or poultry raiser you can be sure that a window material with the name Warp's printed on the edge will really produce faster growth, more meat, and more eggs at less cost. Nearly 25 years of pioneering and experimental work have gone into the making of these top-quality Window Materials. Today these fast-moving products are nationally recognized as the finest made. All of Warp Brothers Window Materials have the name printed along the edge for easy identification, are fair traded and the price of each is nationally advertised—to protect both the dealer and the customer. Your customers will be better satisfied when you supply them only with a window material bearing the name "Warp's" along the edge. They know that experience, dependability, and good faith stand behind that name.

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WEIGHT 2 LB. 13 OZ.
SAME FEED
12½ WEEKS OLD
FED HOME GROWN GR…

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AMERICAN LUMBERMAN & BUILDING PRODUCTS MERCHANDISER

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U. S. Dept. of Commerce
Universal-Zonolite Co.
Weyerhaeuser Sales Co.
Woodwork Jobbers Assn.
Yale & Towne Co.

Editorial

WHO CONTROLS BRAND SPECIFICATIONS?

The editor's mail indicates a mounting interest in the behind-the-scenes debate as to who controls brand specifications in the new home, home improvement and farm building industries.

Certain factors of the organized contractors claim that 80 percent of the control is vested in the contractors.

On the other hand, executives of the National Retail Lumber Dealers association claim that 70 percent of the control is in the hands of lumber dealers. Both can't be right!

In an effort to clarify the situation the editors of the AMERICAN LUMBERMAN & BUILDING PRODUCTS MERCHANDISER have researched the field and find the following conditions obtain:

The predominant factor of control is *what brands are carried on inventory by the local lumber and building products merchant!*

Regardless of who may write the specifications for a contract job, whether consumer, contractor, architect or dealer, the first step usually is to ascertain what materials and brands are available in the local dealer's inventory, and then those brand names are used in the specifications.

In that part of the market where houses are built for sale, customarily called operative building, the consumer automatically accepts those brands of merchandise that are built into the house he buys.

The operative builder here may be said to control the specifications because his is usually the sole contact with the consuming family, but operative builders, too, usually ascertain name brands handled by their dealer suppliers before specifying.

Including the volume of the many building products merchants who do operative building through an "inventory homes" program, it is estimated that 30 percent of the home and farm building volume is normally operative building.

On practically every consumer sale where the project is built after the contract is signed, the building products merchant exercises a high degree of control. He is the one who advertises the services of the light construction industry to the consumer. His is usually the first contact with the customers of the industry.

In this advertising he also features the brand names which he normally carries in inventory. His contractor customers are also made acquainted by personal contact, direct mail, etc. with the brands he carries in stock. Therefore, when architects and contractors in the local market contact the consumers they customarily recommend the brands locally available.

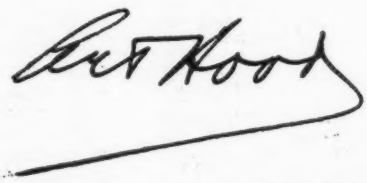
While the majority of building products merchants take a greater or less degree of responsibility to the consumer, in the majority of cases, when the contract is signed, it is between the contractor and the owner, with the dealer as an interested party to the contract.

Regardless of what form the contract takes, or who accepts the responsibility to the consumer, *the merchant is customarily the brand specification controlling factor.* If the merchant accepts the responsibility, naturally he names his own brands. If the contractor accepts responsibility, he naturally names the brands the dealer has in stock.

If, however, the contractor's list should specify certain brands that the dealer does not carry on inventory, the dealer works with the contractor in effecting a change in brand specifications to those the dealer is currently handling.

The survey indicated that it is a rare incident, indeed, in this light construction field where the contractor insists on being supplied a brand that his dealer does not handle.

The accurate answer, then, to the question as to who controls brand specifications in the new home, home improvement and farm building industries *is, without question, the dealer in the very great majority of cases:* 70 percent dealer control is conservative!



EDITOR.

American Lumberman & Building Products Merchandiser's

PRODUCTS DATA MANUAL & STORE DEPARTMENTIZER

Section 1: Lumber, Plywood, Related Items
Section 2: Metal Products
Section 3: Windows, Doors, Millwork
Section 4: Glass Specialties, Plastic Glazing
Section 5: Paint, Wallpaper, etc.
Section 6: Board Products
Section 7: Floors, Floor Coverings and Treatments
Section 8: Roofing, Shingles & Siding
Section 9: Insulation and Weather Stripping
Section 10: Heating, Plumbing & Air Conditioning
Section 11: Hardware & Related Items
Section 12: Farm Equipment & Supplies
Section 13: Lawn and Garden Products
Section 14: Electrical Supplies & Fixtures
Section 15: Bathroom, Kitchen and Laundry
Section 16: Garage Doors and Specialty Selling Items
Section 17: Cement & Masonry Products
Section 18: Plaster & Plastering Products
Section 19: Clay and Tile Products
Section 20: Prefabricated Products
Section 21: Office and Store Equipment
Section 22: Financing and Insurance
Section 23: Selling and Promotional Aids
Section 24: Machinery & Equipment

A Merchandising Handbook and Guide for the Salesmanagers, Salesmen and Buyers of the Light Construction Industry

Selecting and Organizing Merchandise for Sale

A discussion of the ways and means of getting the most out of this first annual merchandise "Departmentizer."*

SOME TIME AGO we predicted that 1947 would be a *transition year*—between a seller's market and the coming buyer's market.

As we go to press, it becomes evident we are on the threshold of a returning healthy buyer's market with its need for creative selling.

This issue has been planned in anticipation of just such a development.

It is a step in another transition—the transition of the lumber yard of yesterday to the building products department store of tomorrow.

When the final retail sales figures for 1946 were compiled and it was found that the retail lumber and building products merchants of America had sold the amazing total of five and one-half billions of dollars worth of goods, (and that in an almost lumberless year in many yards), there came the sudden realization that the building products department store is here!

This *Products Data Manual and Store Departmentizer* is something new under the marketing sun—a merchandising tool designed to assist the dealer who seeks to master the details of modern building products retailing.

WHAT IT IS

This *Products Data Manual and Store Departmentizer* is designed to provide:

A panorama of progress in building products retailing.

The most complete list ever compiled and printed of the products being sold at a profit by the dealers of the building industry.

A compendium of essential reference data on all the principal products the dealers buy, sell and use.

A basis for analyzing the profit chance, department by department.

A comprehensive picture of the profit opportunity in a complete coverage of the consumers' building products needs.

Product information departmentalized for study and analysis.

An instrument which will enable each dealer to provide an individual and personal answer to the question "What will my company attempt to sell in the coming year?"

A complete purchasing directory.

Manufacturers' and wholesalers' advertising coupled for dealers' convenience with the departmental sections they supply.

A departmentalized informational text for: general and sales management; department heads; the credit man and buyer; the shipping clerk and yard superintendent, and an essential tool for the salesman.

A departmental basis for an employee training program.

Definitions of departmental phraseology and unusual product and construction terms.

A contribution to organized cooperation between manufacturer, wholesaler and dealer sales management.

A stimulant to the restoration of natural channels in distribution.

A scientific approach to expansion of operations by building products merchants.

WHAT IT IS NOT!

It is not a price list—although it may be used as a basis for building a very complete individual company price list.

It is not a master products file—although it will be especially helpful in organizing such a file.

Nor is it a dealer products catalog—although its future issues will become one in normal evolution as the dealer's business becomes standardized.

It is not a complete and polished instrument—the editors are aware of many weaknesses—the first encyclopedia was crude compared to today's—we pledge steady improvement in future issues!

SUGGESTED USES

By General and Sales Management:

1. In determining what to sell during the next year, management may check the first 20 sections, one at a time, and settle for a year ahead just what the individual organization will be permitted to sell.

For convenience each sales item is preceded by a checking bracket and a simple technique for decision.

The check (√) placed by management in front of an item means "go ahead and sell it with the expectation that we will normally be able to deliver it promptly;" the check (X) means "sell it subject to our ability to secure it for the customer;" and the check (o) means "do not sell for the present without the specific permission of management."

2. In considering merchandise policy management may conceivably ask and answer these questions: Do my customers need and want this item? Is it saleable at a profit by my organization? Are the mail order houses selling it in volume in my trading area? Is there danger, if I do not merchandise it, that local retail competition may fatten and grow stronger by its sale? Will I not lower my overhead on each dollar of sale and increase my advantage over competition by gradually adding lines of merchandise until I have complete coverage of my community's needs?

3. Blank lines are provided for management to list items we may have overlooked and space is provided for the listing of items asked for by customers that are not listed.

4. When analyzing items to be sold, management

8 IN A SERIES OF MANAGEMENT ARTICLES FOR EXECUTIVE PERSONNEL OF RETAIL BUILDING PRODUCTS COMPANIES

*We have registered the name "Departmentizer" for this new selling tool.

can check with wholesale supply houses as to items which will be available during the coming year in wholesaler stocks. This will obviate the necessity of carrying in stock new, unusual, unlisted or slow moving items.

5. Management will find this Departmentizer chock full of ideas and items for advertising, promotional drives and special campaigns.

6. Management will find it an excellent tool for sales, office and yard personnel training meetings and study courses. Each section lends itself readily to verbal examinations as to the knowledge acquired. (If you desire to reprint any part of it for training purposes do not hesitate to write for permission.)

7. Reprints could be used to inform important customers of products merchandised.

8. Budget studies and quota building will be facilitated by the departmental approach and rapidity of turnover should be definitely stimulated.

9. If the sales curve should turn downward, an immediate review of the *Departmentizer* can be made to uncover potent remedies.

10. The *Departmentizer* provides an excellent check on the performance of department heads, branch yard managers and salesmen.

11. It can be used in coordinating manufacturers' and wholesalers' merchandising plans, policies and activities with those of the dealer, department by department.

Use By Salesmen: (See special article on this subject.)

Use By Credit Manager: The *Departmentizer* enables the credit executive to determine what items and combination of items shall be set up on installment payment plans.

Use By Department Heads: The man responsible for each department has a check list of sales items, methods, procedure and practices used by the most progressive dealers everywhere.

Use By Shipping and Receiving Clerks: To assist in truck routing, scheduling deliveries and reduction of costs.

Use by Yard and Operating Superintendents: In warehouse and yard planning, increasing efficiency of materials handling, work scheduling and cost reduction.

Use By Purchasing Department: In locating sources of supply, analyzing industry programs, weighing competitive lines, wholesale contacts and association services.

Special note for the small volume operator: The *Departmentizer* will enable you to serve your limited volume area in the same manner that the cross roads store acts as the department store of its locality.

USE BY MANUFACTURERS, WHOLESALERS

To integrate and coordinate merchandising plans, policies and programs with dealers.

To coordinate related items with sale of proprietary lines.

To promote the exclusive features of products in advertising.

To advertise the competitive attributes of products and lines.

To relate, department by department, the consumer benefits in these products, the sales and educational helps offered the dealer and the advertising support to the dealer at point of sale.

As an educational tool for their dealer contact men.

Separately bound reprints of this material will soon be available. Reprints will be more than 175 pages in length. They will contain all of the departmentalized educational editorial material in the *Products Data Manual and Store Departmentizer* but will contain none of the advertising. Readers interested in such reprints can obtain more information by writing this publication.

PRIZES FOR BEST SUGGESTIONS

It is the aim of the editors to bring out an annual edition of the Products Data Manual and Store Departmentizer, consistently enlarged and improved each year. To that end we solicit readers' criticism and suggestions for improvement.

Send us lists of items you sell or which your customers ask for that we did not include.

For the three best lists of saleable items we may have overlooked, received in our Chicago office on or before July 1, 1947, we offer three gold plated Schaeffer Stratowriter pens of the modern ball-point type.

And for the best letter containing suggested improvements to the Departmentizer received by the same date we offer a $100 cash first prize and, for the next three best letters, we offer three Schaeffer pens as honorable mention prizes. This competition is open to any reader of American Lumberman & Building Products Merchandiser who is not a member of the staff. In the event of ties Duplicate prizes will be awarded. All entries will be judged by the editors of this publication.

Address lists and letters to the Reference Number Editor, American Lumberman & Building Products Merchandiser, 139 North Clark St., Chicago 2, Illinois.

PRODUCTS DATA *to Help You Sell*

How the retail salesman can use this Products Reference Number and "Departmentizer"* to best advantage.

KNOWLEDGE OF PRODUCTS is the very foundation of successful selling.

It is like the bone structure of the body—not an attractive thing when divorced from the flesh and blood and personality of uses and services and consumer benefits—but a very necessary thing in holding the sale together.

The field of home and farm building embraces thousands of items. Adequate information about each product must be had by someone before a sale can be made. Only dry goods stores and mail order houses require more varied product knowledge.

Needless to say, the opportunity for the salesman in the building field is greater than any other in retailing, but your individual opportunity will be in direct proportion to the knowledge you have of the products you have to sell.

This Products Data Manual and Store Departmentizer is designed to provide for you:

A comprehensive picture of your over-all selling opportunity in the Light Construction Industry.

A detailed and departmentalized portrayal of the actual items you have to sell.

A listing of the consumer services and uses of the products you sell.

A basis for organizing your sales work for greatest efficiency.

Simplified methods which will make estimating and unit price building easier for you.

A check on your previous education and training showing where it needs fortification.

An organized method of selling related items and building each individual sale higher, wider and thicker.

Valuable information on assembly, installation and construction of your sales items.

Helpful selling tips on various commodities.

Definitions of unfamiliar terms.

Methods of making more money selling more goods.

The retail lumber and building products salesman who masters the information in this Products Data Manual and Departmentizer should double his sales production!

20 Specific Suggestions for use by the Salesman:

1. **Use it day by day and week by week throughout the year as a reference work. Thoroughly know what you have to sell—materials, products, units and packages—and all about them!**
2. **Spend one hour per day studying product data until you have learned what is new to you. Have a copy at home as well as on your desk.**
3. **Study it to find the answers to questions buyers ask you about products. (Don't be afraid to admit once that you don't know an answer—but never be caught twice with the same unanswered question!)**
4. **Study it from the viewpoint of analyzing customer's needs. (There is not a family in your community that will not need, use and buy several of the items listed every year from some one. Why not you?)**
5. **Analyze application details in each department with a determination to avoid errors, mistakes and causes of customer misunderstandings.**
6. **Find solutions and take corrective measures for the problem of anticipated sales slumps.**
7. **Use it to build personal sales quotas department by department.**
8. **Analyze the seasonal element of the various items and departments and plan your sales drives accordingly.**
9. **Study ways to get the greatest possible volume out of every customer and sale by covering the complete needs.**
10. **Learn how to route the customer through related departments so that he will be exposed to maximum appeals.**
11. **Study structural sales items so that you may effectively survey the sales possibilities in every structure and farm you visit.**
12. **Analyze product and departmental relationship so that you will fully capitalize on monthly payment selling in building larger and more profitable deals.**
13. **Find ways and means of using this book to help your contractors and other repeat customers make their job easier.**
14. **Study manufacturer's and wholesaler's advertising for further helpful information and coordinate it.**
15. **Study all definitions you are not familiar with so that you will always use non-technical language in talking to consumers. Learn the consumer's name for all the products and services you sell.**
16. **Analyze each department and item until you are completely familiar with the consumer reasons for buying each one.**
17. **In your personal copy mark all items to be sold on installment plan and always quote the monthly payment first on such items.**
18. **Check it department by department to find out what supplementary information you need—arrange to get the additional information from suppliers and other sources.**
19. **Have it handy as a reference tool when studying the consumer selling lessons currently running in the American Lumberman & Building Products Merchandiser.**
20. **Study it in connection with the various selling tools and equipment available to you, and organize these department by department for certain and effective use.**

*We have registered the name "Departmentizer" for this new selling tool.

IN A SERIES OF LESSONS FOR CONSUMER SALESMEN OF LUMBER AND BUILDING PRODUCTS

Section 1

LUMBER, PLYWOOD & Related Items

SECTION No. 1 in the Products Data Manual has been allocated to Lumber because today's Building Products Merchant is an evolution from the lumber yard of yesterday. Nearly all retail merchants who serve the Home and Farm building consumer have the word Lumber in their company name—nearly all the regional retailing associations that make up the National Retail Lumber Dealer's association use the term "lumber" in their name. Practically every lumber retailer in the country carries a full line of other building materials for light construction and practically every building material merchant who serves the Light Construction consumer merchandises lumber.

In many elements of light construction today metals, plastics, asphalt, asbestos, gypsum, cement, clay products, etc., are used alternately with lumber in increasing numbers and quantity, to the point where they are no longer considered as "substitutes" for lumber but as keen competitors for the consumer's favor, item by item.

Prior to the World War I lumber products constituted as much as 70 percent of a lumber and building material dealer's volume. By the end of World War II, for a variety of reasons, this percentage had declined, but with the advent of peace, the increasing production of lumber and aggressive competitive merchandising by lumber manufacturers, this trend will probably be reversed—at least lumber is certain to be a basic department in the operations of the Building Products Merchant.

CONTENTS OF THIS SECTION

Species of Lumber
Grades of Lumber
Sizes of Lumber
Uses of Softwood Lumber
Construction Packages using Lumber
Definition of Lumber Terms
Industrial Uses of Softwood Lumber
Technical Applications of Lumber
Standard Lumber Abbreviations
Weight of Lumber
The Balloon Frame
The Platform Frame
The Braced Frame
Sources of Reference Material
Wood Treatments and Preservatives
Plywood (Conifers)
Plywood (Hardwoods)
Veneers

For Related Sections See Master Index

WOOD

Wood has been and is still one of the chief materials used in the construction and furnishing of the home. It has had natural advantages because of the ease with which it can be worked and fastened, because it has sufficient strength and hardness for general purposes, because it is comparatively light in weight, because it is a good protection against heat and cold, and because it is pleasing in appearance. These properties, which are due to its peculiar chemical nature and physical structure, have made wood unique among building materials.

An impression seems to be prevalent that the supply of wood is becoming so depleted that in the near future it can be used only for ornamental or special purposes. This is erroneous. We still have enough virgin timber in this country to last for several generations, and with the growing practice of forestry a sure supply will always be maintained, partly by increasing the yield of timber per acre and partly by checking the waste in using the timber.

Structure of Wood.—Our commercial woods are divided into two large classes—the hardwoods, or woods from broad-leaved trees, and the softwoods, or conifers, which are woods from trees with needle or scale-like leaves. The

terms "hardwood" and "softwood" give the wrong impression, however, for some so-called softwoods are considerably harder than many hardwoods; and some so-called hardwoods—for example, cottonwood and basswood—are as soft as the softest conifers. These terms have been in use so long, however, that their meaning is well established.

Lumber is the product of a log manufactured by sawing. It may be further manufactured by resawing or planing. A board foot is the quantity of lumber contained in, or derived from, by drying, planing or marking or by any combination of these means, a piece of rough green lumber, one inch thick, twelve inches wide and one foot long, or its equivalent volume in thicker, wider or longer lumber.

CLASSIFICATIONS

In classifying lumber, there are three groups divided according to (1) use, (2) size, and (3) extent of manufacture.

(1) **Use Classifications.** Lumber is generally classified according to the three following principal uses. Separate grading rules may apply to each class.

1. Yard Lumber. This embraces the major quantity of lumber and includes those kinds used for general building purposes. Yard lumber consists principally of 2-inch dimension, timbers and inch boards used for siding, sheathing, underflooring, subroofing and miscellaneous purposes such as stepping, closets, shelving, interior trim, baseboards, etc. Yard lumber is graded on the basis of the intended use of the entire board for a given purpose rather than for further manufacture.

2. Factory and Shop Lumber. This is largely shipped from the sawmills directly to individual plants (including planing mills operated by retailers) for further manufacture. It is graded on the basis of the percentage of clear cuttings. Practically all hardwoods are intended for further remanufacture and many of the pines and Douglas fir are cut in 1" and 2" thicknesses for remanufacture into doors, framing, sills, sash, furniture parts and other similar products.

3. Structural Lumber. This is lumber two inches or more in thickness and 4 or more inches wide intended for use where working stresses are important. The grading of structural lumber is based upon the strength and use of the entire piece as such.

(2) **Size Classifications.** The yard lumber as classified above is further subdivided according to (1) **strips** which are boards less than 2" thick and less than 8" wide; (2) **boards** less than 2" thick and 8" or more wide; (3) **dimension** which comprises lumber from 2" up to but not including 5" thick and of any width, and (4) **timbers** which are 5 or more inches in least dimension.

Structural lumber is further reclassified by size according to (1) dimension (which are sometimes known as joists and planks) consisting of lumber from 2" to but not including 5" thick, and 4" or more wide; (2) timbers 5" or more in least dimension. Timbers may be classified as beams and stringers 5" x 8" or larger, and posts and timbers which are square pieces 5" x 5" and larger and intended to carry longitudinal loads.

(3) **Manufacturing Classifications.** Lumber is also classified according to the extent to which it is manufactured, as follows: (1) rough lumber, undressed, as it comes from the headsaw; (2) surfaced lumber that has been dressed or planed by passing through a planer—it may be dressed one side, two sides, one edge, or a combination of sides and edges; (3) worked lumber that has been run through a matching machine or moulder to provide machined lumber for flooring; shiplapped lumber that is worked to provide a lapped joint along the edges, and patterned lumber that is shaped to a given pattern or mould such as mouldings.

For each standard nominal thickness there is a recognized minimum in the surfaced or finished thickness for each size classification. For example, inch lumber dressed one or two sides must be at least 25/32" in thickness for the standard yard board. For the standard industrial board 13/16" or 26/32" dressed one or two sides is recognized as standard. Yard dimension of nominal 2" thickness shall be dressed to 1⅝", and for standard industrial dimension 1¾" thick. This applies whether the dimension piece is dressed one or two sides. In width, dressing shall not take more than ⅜" off lumber of a standard width of 3", ½" off for widths of 4" to 7" inclusive, and ¾" for widths of 8" to 12".

MEASUREMENT OF LUMBER

In the early days of lumber manufacturing lumber was cut into boards and dimensions, and was sold rough-sawn as it came from the saw. With the advent of the planing mill which dressed lumber to uniform thickness and size, the custom of figuring lumber on the rough-sawn size continued. The unit of measure of lumber—the board foot—is based on its rough-sawn size.

Board Feet.—The board foot, or one square foot in area by one inch thick, is usually used in the measurement of lumber, except in the case of small material like molding, which is sold by the running foot; shingles, which are sold by the square; or posts, poles, and similar materials sold by the piece. When the lumber is less than an inch thick

DEFINITIONS

ANNUAL GROWTH RINGS — The growth layer which a tree puts on in a single year. In the temperate zones, or, as a matter of fact, every place except in the equatorial regions where the same rate of growth continues throughout the year, every growth ring consists of two layers rather than one. The inner layer is the spring wood and consists of the layer of cells of rapid growth. The outer layer is the summer wood in which the cells are smaller and more compact. The transition from spring wood to summer wood may be either abrupt or gradual, depending upon the kind of wood and the growing condition at the time it was formed.

BANDING (also referred to as "railing").—A portion of wood of any specified kind extending around one or more sides of a piece of core usually with its grain extending the long way. This banding of solid wood facilitates shaping the edges of the piece or may be finished flat to cover over the several colors presented in the end or side grain of the core and crossbanding.

BANDS, CROSS—See Crossbanding.

BARGE BOARD—The larger rake member of a house exterior cornice.

BASTARD SAWN—Hardwood lumber in which the annual rings make angles of 30 to 60 degrees with the surface of the piece.

BEAD AND COVE—A moulding much used as the sticking on solid stuck doors. It consists of a half bead, then a quirk and then a cove of approximately the same size as the bead. If the order is reversed and the cove is run next to the face of the stile or rail of which it is a part, it is called "Cove and bead".

BEAM—A term generally applied to the principle horizontal members of a building, so installed as to support the load of the structure. Also called girders. In lumber terminology, beams and stringers are structural material 5 inches and thicker by 8 inches and wider and graded for use horizontally with load applied on the narrow face, or in tension.

BEARING—The point of support on a wall, pillar, beam, or structural member.

BEVEL SIDING—(LAP SIDING)—Used as the finish siding on the exterior of a house or other structure. It is usually manufactured by "resawing" dry square surfaced boards diagonally to produce two wedge-shaped pieces. These pieces commonly run from 3/16" thick on the thin edge to ½" to ¾" thick on the other edge, depending on the width of the siding.

BIRDS EYE—A small swirl of mysterious origin which appears most often in hard maple but sometimes in Walnut and other woods.

BLIND TENONED—Any paneled assembly made with the tenons on the ends of the rails mortised into, but extending only part way through the stile. See Joints.

BLISTER FIGURE—Blister figure consists of seeming knoll-like elevations in the wood. It is due to an uneven contour of the annular rings, and not to blisters or pockets in the wood as the name might indicate.

BOARDS—Yard lumber less than 2 inches thick and 8 or more inches wide. Narrower material is usually referred to as "strips."

BOW—A form or warp resulting in distortion of a board in which the face is convex or concave longitudinally. See Warp.

BOX FRAME—A boxed frame is a check rail window frame having a completely enclosed box for weights. This type of frame is necessary in masonry construction unless some one of the more recent frame types is used, doing away with weights.

BOX SILL—A header nailed on the ends of the joists and resting on a wall plate. Used in frame building construction. See Fig. 1, 3 and 4 of Details for House framing.

BOXED HEADER—The term applied to the joist header which is applied at the ends of joists in boxed sill construction.

BOXED HEART—A term used to indicate that the pith of the log falls entirely within the four faces of the piece somewhere between the two ends.

BRANCHED KNOTS—Two or more knots branching from a common center.

BRASHNESS—A condition of wood characterized by low resistance to shock and by abrupt failure across the grain without normal splintering.

BRIDGE PLANK—Bridge plank in hardwoods is lumber six inches and over wide, eight feet and over long, and two inches and over in thickness.

BRIDGING—The stiffening of floor joist and partition studs by fastening small pieces in between is called solid bridging. Where a double row of diagonal bracing in opposite direction is used in a joist span, it is called "cross bridging." All joist spans less than 9 feet should have one row of cross bridging. Longer spans require 2 rows. To find the amount of lineal feet re-

the usual custom is to treat it in measurement as if it were an inch thick. In some cases, however, account is taken of the thickness when it runs below ⅞ inch. Usually, however, allowance is made in the price of such thin material rather than in the measurement. For material 1¼ or 1½ inches thick in the rough, the number of square feet of superficial surface is increased by ¼ and ½, respectively, to take account of the increased thickness. Similarly, for material 2½ inches thick the superficial surface is multiplied by 2½ to give the correct number of board feet.

The number of board feet in dressed lumber is usually based on the thickness of the board before planing; hence, boards ⅞ of an inch dressed are treated as one-inch material, and similarly boards 1⅛ inches thick are treated as 1¼ inches, the usual amount taken off in dressing being about ⅛ of an inch. In the measurement of flooring the width of the board is taken in a similar manner; i. e., from the width of the original piece before trimming. It thus includes the full width of the board, including the tongue in tongued and grooved material. Where there is any possibility of misunderstanding as to the unit of measurement of lumber, the method to be used should be definitely agreed upon between purchaser and salesman.

The rule is:

Multiply together:

Thickness in inches $\times$ $\frac{\text{width in inches}}{12}$ $\times$ length in ft.

Lumber of less than one inch thickness in rough sawing is figured as if it were one inch thick and the adjustment for its thinness is made in the price per thousand.

LUMBER CALCULATOR—BOARD FEET

Size in Inches	8	10	12	14	16
1x 2	1-1/3	1-2/3	2	2-1/3	2-2/3
1x 3	2	2-1/2	3	3-1/2	4
1x 4	2-2/3	3-1/3	4	4-2/3	5-1/3
1x 5	3-1/3	4-1/6	5	5-5/6	6-2/3
1x 6	4	5	6	7	8
1x 8	5-1/3	6-2/3	8	9-1/3	10-2/3
1x10	6-2/3	8-1/2	10	11-2/3	13-1/3
1x12	8	10	12	14	16
5/4x 4	3-1/3	4-1/6	5	5-5/6	6-2/3
5/4x 6	5	6-1/4	7-1/2	8-3/4	10
5/4x 8	6-2/3	8-1/3	10	11-2/3	13-1/3
5/4x10	8-1/3	10-5/12	12-1/2	14-7/12	16-2/3
5/4x12	10	12-1/2	15	17-1/2	20
2x 4	5-1/3	6-2/3	8	9-1/3	10-2/3
2x 6	8	10	12	14	16
2x 8	10-2/3	13-1/3	16	18-2/3	21-1/3
2x10	13-1/3	16-2/3	20	23-1/3	26-2/3
2x12	16	20	24	28	32

STANDARD SIZES OF LUMBER

Conforming with the recommendations of the Lumber Industry as set forth in Simplified Practice Recommendations No. 16 published by the United States Department of Commerce.

Type of Lumber	Nominal Size Thickness	Nominal Size Width	Actual Size S4S At Comm. Dry Shp. Wt. Thickness	Actual Size S4S At Comm. Dry Shp. Wt. Width
Dimension	2 in.	4 in.	1⅝ in.	3⅝ in.
	2 in.	6 in.	1⅝ in.	5⅝ in.
	2 in.	8 in.	1⅝ in.	7½ in.
	2 in.	10 in.	1⅝ in.	9½ in.
	2 in.	12 in.	1⅝ in.	11½ in.
Timbers	4 in.	6 in.	3⅝ in.	5½ in.
	4 in.	8 in.	3⅝ in.	7½ in.
	4 in.	10 in.	3⅝ in.	9½ in.
	6 in.	6 in.	5½ in.	5½ in.
	6 in.	8 in.	5½ in.	7½ in.
	6 in.	10 in.	5½ in.	9½ in.
	8 in.	8 in.	7½ in.	7½ in.
	8 in.	10 in.	7½ in.	9½ in.
Common Boards	1 in.	4 in.	25/32 in.	3⅝ in.
	1 in.	6 in.	25/32 in.	5⅝ in.
	1 in.	8 in.	25/32 in.	7½ in.
	1 in.	10 in.	25/32 in.	9½ in.
	1 in.	12 in.	25/32 in.	11½ in.
Shiplap Boards	1 in.	4 in.	25/32 in.	3⅛ in. face
	1 in.	6 in.	25/32 in.	5⅛ in. face
	1 in.	8 in.	25/32 in.	7⅛ in. face
	1 in.	10 in.	25/32 in.	9⅛ in. face
	1 in.	12 in.	25/32 in.	11⅛ in. face
Tongued and Grooved Boards	1 in.	4 in.	25/32 in.	3¼ in. face
	1 in.	6 in.	25/32 in.	5¼ in. face
	1 in.	8 in.	25/32 in.	7¼ in. face
	1 in.	10 in.	25/32 in.	9¼ in. face
	1 in.	12 in.	25/32 in.	11¼ in. face

You can see from the above table that, if you have 100 square feet of surface to cover with 6 inch dressed boards, 100 board feet of boards will not do the job. A certain percentage must be added to each width of each kind of material to make up for this loss in dressing, shiplapping or matching. Then too, there is a wastage in cutting on the job by the carpenter which must also be taken in consideration. This wastage varies with each kind of material, where it is used and the method of applying it. You will find as you read the rules of estimating that you will be told to add certain percentages to the area to be covered which will compensate for the above two waste factors.

All lumber is estimated on the basis of the number of

quired for a row of bridging, figure 2½ times the length of the run. Bridging is usually made from 1x2, 1x3, 1x4 or 2x2.

BROKEN STRIPE—Broken stripe is a modification of the stripe figure, due to undulations in the annual growth of the tree, which produce changes in the angle of the fibers.

BUILT-UP TIMBER—A timber made of several pieces fastened together and forming one of larger cross section dimension. Built up beams used horizontally, with the members bearing weight in vertical position and well **bolted** together have been found by tests at the Forests Products laboratory to be as strong and stiff as solid beams of the same external dimensions and a comparative quality of material.

BUNGALOW SIDING—Term usually applied to bevel siding 8 inches or more in width. See Siding.

BURL—A type of figure produced by cutting through burls which are wartlike protuberances on trees. They contain the dark pith centers of a large number of undeveloped buds.

CALIFORNIA REDWOOD (Commercial) (Sequoia Sempervirens)—The most remarkable stand of timber in the whole world is located in a narrow strip from ten to thirty miles wide on the ocean side of the Coast Range mountains and extending from southern Oregon to within a few miles of San Francisco. Another small area lies south of San Francisco. This is the giant California redwood which, while not to be confused with its cousin, the "Big tree redwood (Sequoia gigantea), is still great enough to be called "giant" in comparison with trees of other species. However, the great size of this tree both in diameter and height, together with the closeness of the stand, goes far toward making up in productiveness what is lost in area. The trees now being utilized generally measure from four to twelve feet in diameter and many of them reach a height of three hundred and fifty feet. Single trees often saw as much as thirty thousand feet board measure and measured areas have cut more than a million feet.

It is a very durable wood, ranking in this respect with the cedars, and is valuable for use where contact with moisture is unavoidable. The wood is straight grained, comparatively light in weight and non-resinous. Its tendency to shrink is slight, it stays in place well and works easily. It is just a bit harder than the white pines but considerably softer than the southern yellow pines. It takes paint well and redwood exteriors can be covered and the natural color of the wood thoroughly disguised with the same number of coats as any other wood.

CAMBER—The convexity of a truss or beam to offset weight or pressure which might result in its becoming concave.

CANTILEVER—A projecting beam or member supported at only one end, built into a wall or pier. A bracelike member supporting a cornice or balcony.

CASE HARDENED—In kiln drying lumber it sometimes happens that the application of a high degree of heat without sufficient lapse of time, will cause the exterior of a piece of lumber to become very dry while the interior retains a higher percentage of moisture. In such cases the piece is said to be case hardened.

CEDAR POSTS—Made from small cedar trees for use as fence posts. Usual lengths are 7, 8 and 10 feet with diameter from 2 to 8 inches. 10-foot posts with cross arms attached may be used for clothes line posts.

CEILING—Ceiling is a pattern lumber usually worked into four standard thicknesses—$\frac{5}{16}$ inch, $\frac{7}{16}$ inch, $\frac{9}{16}$ inch, and $\frac{11}{16}$ inch, and into four standard widths—2⅜ inches face, 3¼ inches face, 4¼ inches face and 5$\frac{13}{16}$ inches face. It is matched with tongue and groove, beaded one side on the tongued edge and chamfered one side on the grooved edge. The back is always plain. It is produced in the grades "B and better," "C" and "D" and in practically all of the commercial soft woods.

CENTERS—See Cores.

CENTERS, BANDED—See Cores, Banded.

CHAIN FIGURE—A succession of short cross markings of uniform character remotely suggesting cross links of a chain.

CHECK—In lumber. A lengthwise separation of the wood, which usually occurs across the rings of annual growth.

CLOSE GRAIN—A term closely related to the density of lumber. If applied to southern yellow pine or Douglas fir it would mean not less than six annual rings to the inch.

CLOSET LINING—Closet lining is made from Aromatic red cedar (Juniper virginiana). It is usually ⅜ inch thick and is carried in stock in three widths—1½ inch face, 2 inch face, and 3¼ inch face. It is tongued and

pieces, lineal foot, board foot.

It is estimated by the piece if:

a. each end rests on bearings that are a stated distance apart, or

b. a number of pieces are required that are the same length, or

c. a definite length is needed to cut without waste.

It is estimated by the lineal foot if the stock can be joined almost anywhere.

It is estimated by board measure where there is an area to be covered.

It is standard lumber practice that all fractional parts of a lineal or board foot of lumber are counted as another foot. All odd number of lengths of lumber are increased to the next even foot unless two pieces are coming into an even foot length of stock.

Estimating or quantity listing is the science of determing from plans and specifications the quantities of the various kinds of materials that will be required to complete a structure. This requires a practical knowledge of the principles of mensuration. It is necessary for you to know lineal measurement rules to find the perimeters of buildings; area measurement rules to find the areas of floors, ceilings, walls, gables and roofs; volume measurement rules for excavating and concrete work.

Perimeter—The perimeter is the distance around a square or a rectangle. It is found by adding the length and width of the building and multiplying by 2.

The **circumference** of a circle (distance around a circular building)—multiply the diameter by pi (3.1416).

Hypotenuse of a triangle—the square root of the sums of the squares of two sides of a triangle.

BASIC GRADE CLASSIFICATION FOR YARD LUMBER

The following outline is a key to the American Lumber Standards:

- **Total products of a typical log arranged in series according to quality as determined by appearance.**
  - **Select—lumber of good appearance and finishing qualities.**
    - **Suitable for natural finishes.**
      - **Grade A—Practically free from defects.**
      - **Grade B—Allows a few small defects or blemishes.**
    - **Suitable for paint finishes.**
      - **Grade C—Allows a limited number of small defects or blemishes which can be covered with paint.**
      - **Grade D—Allows any number of defects or blemishes which do not detract from a finish appearance, especially when painted.**
  - **Common—Lumber containing defects or blemishes which detract from a finish appearance but which is suitable for general utility and construction purposes.**
    - **Lumber suitable for use without waste.**
      - **No. 1 common—Sound and tight knotted stock. Size of defects and blemishes limited. May be considered watertight lumber.**
      - **No. 2 common—Allows large and coarse defects. May be considered grain-tight lumber.**
    - **Lumber permitting waste.**
      - **No. 3 common—Allows larger and coarser defects than No. 2 and occasional knot holes.**
      - **No. 4 common—low quality lumber admitting the coarsest defects such as decay and holes.**
      - **No. 5 common—Must hold together under ordinary handling.**

grooved and may or may not be backed out the same as flooring. As the name indicates, it is used as a lining for closets and is effective in keeping away moths and other vermin.

CLOSET POLE—A horizontal rod or pole about one inch in diameter placed in a closet for the support of clothes hangers.

COARSE GRAINED—Wood with wide and conspicuous annual rings; that is, rings in which there is considerable difference between the spring and summer wood. The term is sometimes used to designate wood with large pores, such as oak, ash, chestnut or walnut, but in this sense the term "coarse textured" is to be preferred.

COLLAR BEAM—A horizontal beam fastened above the lower ends of rafters to add rigidity. See House Cross Section.

CONSTRUCTION, FRAME—A type of construction in which the structural parts are of wood or dependent upon a wood frame for support. In codes, if brick or other incombustible material is applied to exterior wall, the classification of this type of construction is usually unchanged.

CORES—The center plies of veneer in a plywood panel.

CORES, BANDED—Cores that have been made with banding on one or more side. See Banding.

CORNER BOARDS—Used as trim for the corners of a house or other frame structure covered with siding, either bevel or drop. One piece should be wider than the other by the thickness of the pieces so they will appear the same width when in place on the building. Usually one piece of 1x4 and one piece of 1x5 are used. The length of corner boards is the height of the frame wall. Siding should butt up against the corner board.

CORNICE—The horizontal moulded trim encircling a building at the roof line. On a house it forms the connection between the roof and sidewalls. Also interior trim, wood or plaster at the angle of sidewalls and ceilings.

CRATING LUMBER—Lumber suitable for crating. Nearly every manufacturer of lumber, both softwood and hardwood, often finds it expedient to convert some of his lower grade material into crating lumber either for the framing of the crate or the covering of the vulnerable parts of some articles that require crating. Crating lumber must necessarily be of low cost but it must also be reasonably strong, stiff and of a type that holds nails well and does not split easily.

CROOK—A form of warp resulting in distortion of a board in which the edge is convex or concave lengthwise. See Warp.

CROSSBAND—In the construction of plywood, to place the grain of alternate layers (usually) at right angles to the grain of the faces in order to more nearly equalize the strength in the two principal directions, and to minimize shrinking and swelling. In plywood, layers of veneer at right angles to the face plies.

CROSS FIRE—A distortion of the wood fibers of the tree which, cut the radial way, produce figures and high lights similar to a corrugated surface.

CROSS GRAIN—Grain not parallel to the axis of the piece. It may be either diagonal or spiral or a combination of the two. It is caused by fibers growing in a more or less winding or spiral course around the bole of the tree instead of in a vertical course. So far as is known it is caused by the twisting due to high and frequently changing winds. Cross grained pieces are not always apparent in casual inspection and the best test is to split a piece at right angles to the annual rings. Checks on a flat sawn surface are also an indication.

CUP—In lumber, a form of warp resulting in distortion of a board in which the face is convex or concave across the grains or width of a piece. See Warp.

CURTAIN WALL—A non-bearing wall between columns or piers which is not supported by girders or beams.

DECAY—Decay is disintegration of wood due to the action of wood destroying fungi. "Rot" and "Dote" are other names for the same thing.

The fungi referred to are a low form of plant growth and require three favorable conditions or factors for development. Those three conditions are moisture, air and warmth. If any of these three requirements are absent, the ravages of decay fungi will not be apparent, but it seems that they only become dormant, for the restoration of the three conditions is almost sure to bring about indications of renewed activity.

One of the first indications of what is called incipient decay is blue stain. While blue stain itself is not necessarily serious, since it does not affect the strength of the wood, it is an indication of the presence of fungi and under conditions mentioned above is likely to develop into more advanced decay. However, if lumber in which blue stain is present is kiln dried, it is usually safe to say that the heat of

Lumber, Plywood & Related Items

Areas—Squares and rectangles—length multiplied by the width. Circular buildings—radius squared × pi (3.1416). Triangles—length of the base × ½ the length of the altitude.

Volume—To find the cubical contents of an excavation, trench, etc. multiply the length by width by the depth or thickness. To find the cubical contents of a cylinder multiply the area of the base by the altitude. To find the cubical contents of a pyramid or cone, multiply the area of the base by one-third of the altitude.

QUALITY STANDARD

In respect to quality yard lumber has two main divisions:

1. **Select lumber.**—Select lumber, according to the American Lumber Standards, is:

Generally clear, containing defects limited both as to size and number, and **smoothly finished** and suitable for use as a whole for finishing purposes or where large clear pieces are required.

Two classes of select lumber are provided:

(a) That suitable for natural finishes, graded as A and B.

(b) That having defects and blemishes of somewhat greater extent than (a), but which can always be covered by paint, graded as C and D.

2. **Common lumber.**—The American Lumber Standards specify common lumber as that having numerous defects and blemishes preventing its use for finishing purposes, but suitable for general utility and construction purposes.

Again, American Lumber Standards recognize two general classes:

(a) Common lumber which can be used as a whole for purposes in which surface covering or strength is required. All defects and blemishes in this classification must be sound. This class includes No. 1 and No. 2 common.

(b) Common lumber containing very coarse defects likely to cause waste in the use of the piece. This class includes No. 3, No. 4, and No. 5 common.

Dimension lumber is available only in the three upper grades No. 1, No. 2, and No. 3 common.

The following outline is a key to the American Lumber Standards:

Strength of Wood and Factors Affecting It.—In the construction of a dwelling house the strength of its timbers, joists, and studding is an important consideration. No definite rule can be laid down, however, as to the necessary size of each piece, for this varies with the size of the building, the type of construction, the length of the span, and the distance the supporting members are apart. The selection of proper dimensions is an engineering problem and should be left to a competent architect. A few suggestions, however, may be of value to the owner in inspecting his building or building material.

The strength of structural timbers, whether bending strength, as in joists and rafters; the side-crushing strength, as in sills and the end of joists; or the end-crushing strength, as in studding—is influenced by several factors. The density of the wood, as indicated by its dry weight, is a good indication of its strength. Heavy woods like oak, yellow pine, and Douglas fir are much stronger than lighter woods, as white spruce and white pine. The density of the softwoods, and also the oaks and other ring-porous hardwoods, can be judged by the percentage of dense summer wood as seen on the smoothly cut end surface. For the softwoods, like yellow pine, tamarack, hemlock, and Douglas fir, the densest wood is usually found in pieces showing neither very slow growth nor very rapid growth. In the southern yellow pines and Douglas fir an average of six rings per inch, with an average of one-third of each ring summer wood, indicates excellent quality so far as strength is concerned. In general, for ring-porous hardwoods, as oak, ash, and chestnut, the wider the rings the stronger the wood. The home builder should be particularly careful that those timbers which have heavy loads to support be not of very wide or of extremely narrow-ringed softwoods, or very narrow-ringed hardwoods, unless they are larger than would be necessary for timbers of average rate of growth.

Whether a stick of timber contains much or little sapwood has no direct bearing on the strength. Other things being equal, sapwood is as strong as heartwood. Sapwood, as a rule, is less durable than heartwood, and, consequently, under conditions favoring decay it may soon be destroyed, weakening the structure correspondingly. If the wood is to be given a preservative treatment, sapwood is not objectionable, for it absorbs preservatives more readily than heartwood.

The direction of the grain should be parallel to the sides of a stick in order to afford maximum strength. Diagonal grain greatly reduces the strength of the wood. The direc-

(Continued on Page 28)

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the kiln is sufficient to destroy fungi. Wood that is constantly immersed in water does not decay, although it is almost invariably attacked by marine borers whose ravages are even more serious. Wood that has been kiln dried to somewhat less than ten percent of moisture content and then protected from moisture by a coating of some finish material such as varnish or paint is usually safe from the action of decay fungi for centuries, although this should not be taken as an assertion that paint or varnish effectively stops the passage of moisture, for it only retards it.

Heart wood is more resistant to fungi than sap wood although it is safe to say that any sound wood, either heart or sap, that is kept at a moisture content that does not exceed the average moisture content of the atmosphere, is safe. "Dry rot" is a misnomer. When so called dry rot is discovered it is a foregone conclusion that moisture was present when the disintegration of the wood took place or the wood would have remained sound. Water pockets caused by careless construction, the loosening of putty from the glass in sash, failure to paint and close the possible entrance of moisture into joints of windows and doors and many other such scarcely noticeable but dangerous practices cause the development of fungi which operate as long as the moisture lasts and then become dormant until more moisture comes along.

DEFECTS, OPEN. (Plywood)—Checks, splits, open joints, cracks, loose knots, worm holes, or other defects interrupting the smooth continuity of the surface.

DENSITY—The amount of wood substance in one piece of wood as compared to another. It is governed by the size of the cells and the thickness of the cell walls. It is measured by the specific gravity. It is observed superficially by the amount of summer wood and the number of annual rings. Strength of wood increases with its density because strength depends upon the amount of wood substance. In southern pine and Douglas fir density can be estimated by the proportion of summer wood. In all other woods tests and specific gravity determination would have to be made to indicate a reasonable comparison.

DENSITY RULE—Rules for estimating the density of wood based upon percentage of summer wood and rate of growth have been formulated for Douglas fir and Southern pine and differ but slightly. However both are presented as a part of "American Lumber Standards."

DIMENSION—The size or measured extent of anything. The dimensions of a room, a cupboard, a board. In giving dimensions of windows, doors, or of any article in millwork that stands vertically, the horizontal dimension should always be given first.

DIMENSION—All yard lumber except boards, strips, and timbers; that is, yard lumber 2 inches to but not including 5 inches thick, and of any width.

DIMENSION STOCK—Squares or flat stock usually in pieces under the minimum size admitted in standard lumber grades, rough or dressed, green or dry, cut to approximate dimension required for the various products of woodworking factories. This term applies more especially to softwood.

DOUGLAS FIR—(Pseudotsuga taxfolia) A leading timber tree of American habitat, its annual cut being second only to southern pine. Douglas fir is not in the strict botanical sense of the term either a fir, a spruce, or a pine, but its producers claim for it all the good qualities which these important trees possess. It grows all through the western highlands from Canada to Mexico, but it is in western Washington and western Oregon that it really assumes those enormous dimensions for which it is so justly noted. In this region the Douglas fir frequently reaches a diameter of from five to eight feet and heights of from 250 to 300 feet. It compares with the best of woods in its ability to resist decay and it suffers less in either rail or water transportation than most other woods. It is being used more and more in all kinds of construction and in millwork operations. Enormous quantities are made into plywood. The wood is of medium weight, medium hardness, very strong, and the heartwood shows a tendency to resist decay that is only a trifle less than that of the highest class of decay resisting woods. It is being used for almost everything that wood is used for and has been found deficient in very few cases. Poles, piling, ties and long heavy timbers find a ready market for it, while inside finish as well as doors and sash draw heavily on the supply. Its color is yellowish red with comparativly thin white sapwood. Other names for the same wood are "Douglas spruce", "Red fir", "Oregon fir", "Yellow fir", "Puget Sound pine", and "Oregon pine".

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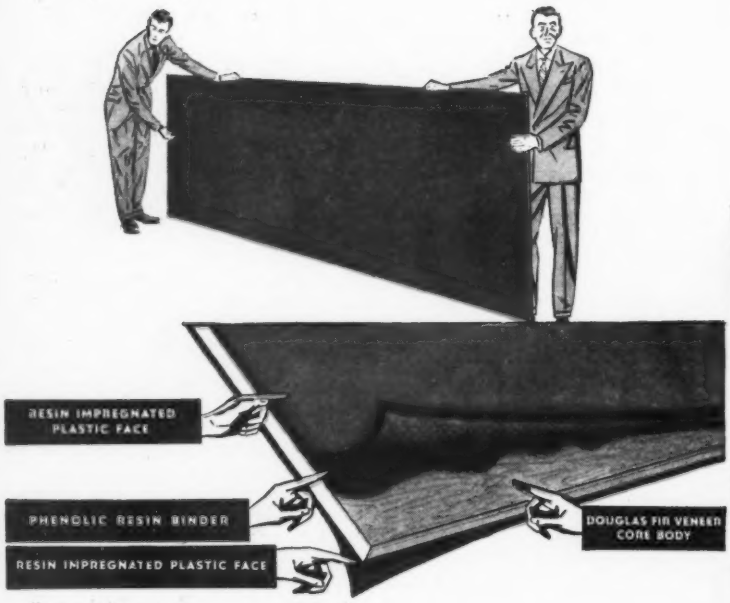
As Available . . .

Harbor Presents

Harborite SINGLE-PLY

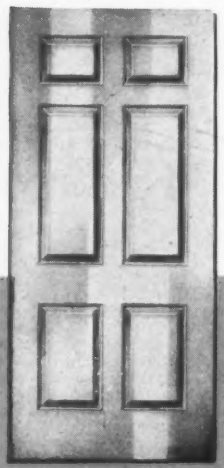


Harborite is Harbor Plywood's time-proven, resin-impregnated, plastic-faced plywood. The smooth, grainless, weatherproof surfaces — of a pleasing brown color — are of phenol-type resin-impregnated plastic, permanently bonded to the Douglas fir core body. Two types of core body are available—single-ply, with the plastic faces applied to both sides of a single sheet of veneer as shown above. Multi-ply—shown at the right—is made with a cross-banded plywood core body.

HARBORITE PANELS—Single or Multi-Ply

Stock Panels	Width	Length	Thickness
Single-Ply	36" up to 48"	96" up to 144"	1/8" & 3/16" Nominal
Multi-Ply	36" up to 48"	96" up to 144"	1/4" to 1-3/16"

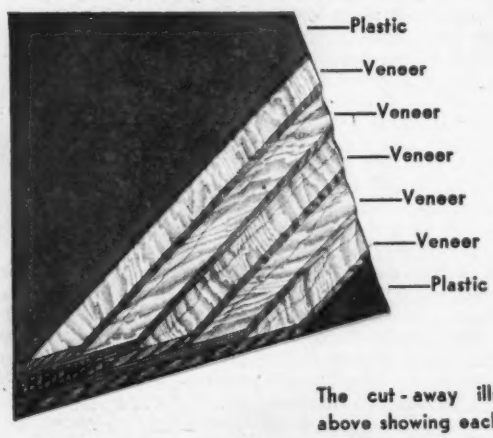
A check list of proven uses include siding for railway refrigerator cars, buses, trucks and trailers; cabinet work, table tops, concrete forms, signs, toys, sports equipment, and a wide range of utility items.



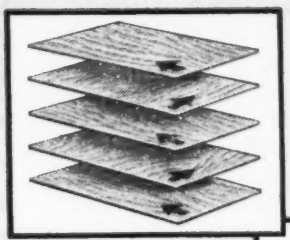
HARBOR OFFERS DOORS PRECISION-MADE OF DOUGLAS FIR AND OTHER WOODS UNDER THE TRADE NAME HARBORD

Durable, attractive Harbord Sag-Nott entrance and interior doors may be ordered pre-fit to exact opening size, mortised and gained, pre-primed as well. Save time and labor on the job, assure better installations.

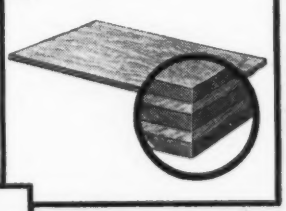
Harborite MULTI-PLY

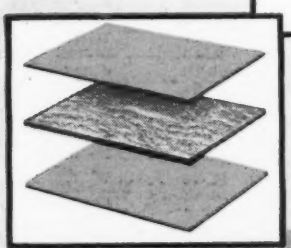


The cut-away illustration above showing each veneer of the core body and showing the two plastic faces serves to reveal the importance of the plastic overlay to the plywood panel. New service and appearance values are added.

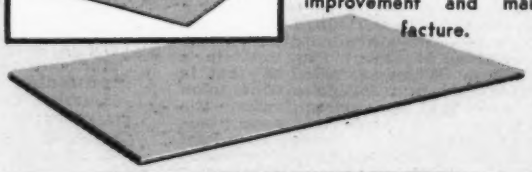


The core body for Harborite Multi-Ply is composed of the cross-laminated veneers as illustrated above.





The resin-impregnated overlay is bonded to the plywood core body. The resulting product is in logical sequence of plywood improvement and manufacture.



HARBOR PLYWOOD CORPORATION

General Offices . . . Hoquiam, Washington

These Products

. . . through Retail Dealers

SUPER-Harbord

WATERPROOF TYPE DOUGLAS FIR PLYWOOD

SUPER-Harbord is the original exterior or waterproof type of Douglas fir plywood. Its world-wide reputation for quality was firmly established before it added an unmatched war service record. In manufacturing the product the component veneers are bonded with a unique process employing a phenol-aldehyde type synthetic resin set in a hot press under normal plywood pressures. The resin was developed on the Harbor premises and is manufactured from chemicals purchased in bulk.

Harbord

MOISTURE-RESISTANT TYPE DOUGLAS FIR PLYWOOD

Harbord is the regular ***moisture-resistant*** type Douglas fir plywood of Commercial Standard quality. It is manufactured by the latest improved hot-plate method. This type is the type of panel material popularly used for wall-board, cabinet work, sheathing and other home construction and for utility purposes.

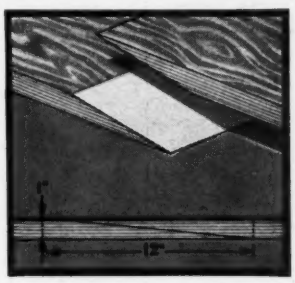
SUPER-Harbord Giant

PLYWOOD PANELS EXTEND PLYWOOD'S USES

ANY LENGTH, MAXIMUM WIDTH OF NINE FEET

ANY WIDTH, MAXIMUM LENGTH OF NINE FEET

Giant-size SUPER-Harbord panels are produced to order by joining standard-size panels with a special scarf joint. Any length Giant panels may be produced with a maximum width of 9 ft. unsanded (8 ft. 6 in. sanded). The special scarf joint develops the full strength of the panels which are joined. The Giant sizes extend the usefulness of the product and have solved many construction problems in the marine, railway, and other transportation fields. For example, the Giant panels are used for planking and decks of boats of many sizes which are constructed for pleasure or work service. The sides, floors and roofs of buses, trucks, trailers and railway cars capitalize upon the added strength and ease of fabrication of the larger units of SUPER-Harbord. Likewise designers of other types of construction have been quick to appreciate that similar unit-type construction reduces the number and bulk of framing members; hence, it increases usable cubage and reduces over-all weight. Giant panels of Harborite are also produced to order. The same basic scarf-joint technique permitting a barely perceptible joint-line is used to produce the large size plastic-faced panels.



Scarf Joint, Ratio 1" to 12"

HARBOR DISTRIBUTES THE NEW EUBANK PATENTED, SWIVEL-TYPE CABINET IRONING BOARD

The Eubank patented swivel support allows board to swing through a wide arc for flexibility . . . holds it rigidly upright in cabinet when not in use. Can be installed where space is limited.

DISTRIBUTING WAREHOUSES AND SALES OFFICES IN FOLLOWING CITIES:

Atlanta, Ga., Aberdeen and Tacoma, Wash., Baltimore, Md., Chicago, Ill., Cincinnati, O., Indianapolis, Ind., Jacksonville, Miami and Tampa, Fla., Kansas City, Mo., Los Angeles and San Francisco, Calif., Louisville, Ky., Omaha, Neb., Philadelphia, Pa., Washington, D.C., Watertown and Worcester, Mass.

Nation-wide distributing offices now offer a number of related products. Look to Harbor for the newest and most useful items.

tion of the grain can easily be determined by trying to split a sliver off one or two corners of the stick or by noting the direction of seasoning checks on the longitudinal surfaces.

Moisture in wood reduces its strength, but in timbers the increase in the strength of the wood fiber due to drying is offset by checks and shakes which are the natural result of seasoning. The influence of moisture on shrinkage and durability is far more important than its influence on strength in the construction of dwelling houses.

The presence of knots and large checks may seriously affect the cross-breaking strength of wood, their seriousness depending on their size and location. Knots in the lower portion of a beam near the middle have considerably more weakening effect than in other portions. Joists with knots on one edge should be placed with the knots up. Knots, provided they are sound, do not seriously weaken the wood in compression. The weakening influence of checks, which are radial cracks due to seasoning, and

RELATIVE DURABILITY OF COMMON WOODS

SOFTWOODS

Very Durable	Durable	Less Durable
Cedar, Port Orford	Fir, Douglas.	Hemlock, eastern.
Cedar, northern white.	Tamarack.	Hemlock, western.
Cedar, western red.	Larch, western.	Pine, loblolly.
Cypress.	Pine, Longleaf.	Pine, Norway.
Redwood.	Pine, northern white.	Pine, shortleaf.
		Pine, sugar.
		Pine, western white.
		Pine, western yellow.
		Firs, true.
		Spruces.

HARDWOODS

Chestnut.	Cherry, black.	Butternut.
Walnut, black.	Oaks, white.	Gum, red.
		Poplar, yellow.
		Oaks, red.
		Basswood.
		Beech.
		Birch.
		Buckeye.
		Cottonwood.
		Elm, white.
		Maple, hard.
		Maple, Oregon.
		Maple, soft.
		Sycamore.
		Cotton gum.
		Ash, white.

BOARD MEASURE LUMBER TABLE

Showing Number of Feet—Per Piece

Nominal Sizes (Inches)	Length in Feet: 8	9	10	12	14	16	18	20	22
1x2	1 1/3	1 1/2	1 2/3	2	2 1/3	2 2/3	3	3 1/3	3 2/3
1x3	2	2 1/4	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2
1x4	2 2/3	3	3 1/3	4	4 2/3	5 1/3	6	6 2/3	7 1/3
1x5	3 1/3	3 3/4	4 1/6	5	5 5/6	6 2/3	7 1/2	8 1/3	9 1/6
1x6	4	4 1/2	5	6	7	8	9	10	11
1x8	5 1/3	6	6 2/3	8	9 1/3	10 2/3	12	13 1/3	14 2/3
1x10	6 2/3	7 1/2	8 1/3	10	11 2/3	13 1/3	15	16 2/3	18 1/3
1x12	8	9	10	12	14	16	18	20	22
1 1/4x4	3 1/3	3 3/4	4 1/6	5	5 5/6	6 2/3	7 1/2	8 1/3	9 1/6
1 1/4x6	5	5 5/8	6 1/4	7 1/2	8 3/4	10	11 1/4	12 1/2	13 3/4
1 1/4x8	6 2/3	7 1/2	8 1/3	10	11 2/3	13 1/3	15	16 2/3	18 1/3
1 1/4x10	8 1/3	9 3/8	10 5/12	12 1/2	14 7/12	16 2/3	18 3/4	20 5/6	22 11/12
1 1/4x12	10	11 1/4	12 1/2	15	17 1/2	20	22 1/2	26	27 1/2
2x4	5 1/3	6	6 2/3	8	9 1/3	10 2/3	12	13 1/3	14 2/3
2x6	8	9	10	12	14	16	18	20	22
2x8	10 2/3	12	13 1/3	16	18 2/3	21 1/3	24	26 2/3	29 1/3
2x10	13 1/3	15	16 2/3	20	23 1/3	26 2/3	30	33 1/3	36 2/3
2x12	16	18	20	24	28	32	36	40	44
3x3	6	6 3/4	7 1/2	9	10 1/2	12	13 1/3	15	16 1/2
3x4	8	9	10	12	14	16	18	20	22
3x8	16	18	20	24	28	32	36	40	44
4x4	10 2/3	12	13 1/3	16	18 2/3	21 1/3	24	26 2/3	29 1/3
4x6	16	18	20	24	28	32	36	40	44
4x8	21 1/3	24	26 2/3	32	37 1/3	42 2/3	48	53 1/3	58 2/3
6x6	24	27	30	36	42	48	54	60	66
6x8	32	36	40	48	56	64	72	80	88
8x8	42 2/3	48	53 1/3	64	74 2/3	85 1/3	96	106 2/3	117 1/3

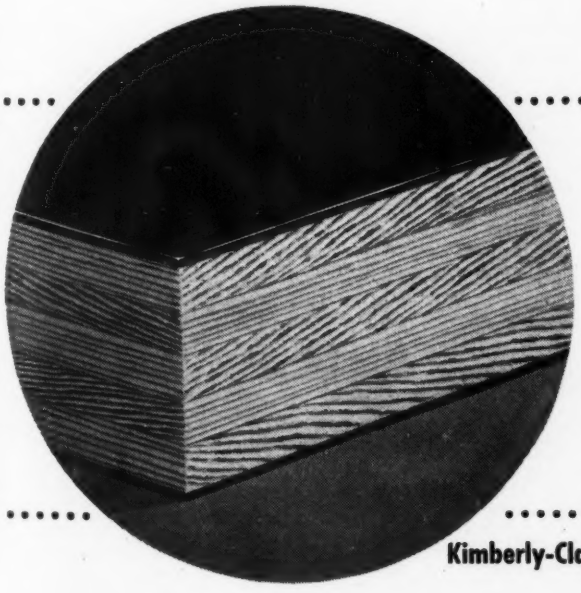
LUMBER WEIGHT TABLE

Species	Weight per cubic foot: Green	Weight per cubic foot: Air-dry (12-per-cent moisture content)	Weight per 1,000 board feet (nominal size) air-dry (12-percent moisture content)
	Lb.	*Lb.*	*Lb.*
Ash, commercial white	48	41	3,420
Aspen	43	26	2,170
Basswood	42	26	2,170
Beech	54	45	3,750
Birch	57	44	3,670
Birch, paper	50	38	3,160
Cedar, eastern red	37	33	2,750
Cedar, northern white	28	22	1,830
Cedar, Port Orford	56	29	2,420
Cedar, southern white	26	23	1,920
Cedar, western red	27	23	1,920
Cherry, black	45	35	2,930
Chestnut	55	30	2,500
Cottonwood, eastern	49	28	2,330
Cottonwood, northern black	46	24	2,000
Cypress, southern	51	32	2,670
Douglas fir (coast region)	38	34	2,830
Douglas fir ("Inland Empire" region)	36	31	2,580
Douglas fir (Rocky Mountain region)	35	30	2,500
Elm, American	54	35	2,920
Elm, rock	53	44	3,670
Elm, slippery	56	37	3,080
Fir, balsam	45	25	2,080
Fir, commercial white	46	27	2,250
Hemlock, eastern	50	28	2,330
Hemlock, western	41	29	2,420
Larch, western	48	36	3,000
Maple, bigleaf	47	34	2,830
Maple, black	54	40	3,330
Maple, red	50	38	3,170
Maple, silver	45	33	2,750
Maple, sugar	56	44	3,670
Oak, red	64	44	3,670
Oak, white	63	47	3,920
Pine, lodgepole	39	29	2,420
Pine, northern white	36	25	2,080
Pine, Norway	42	34	2,830
Pine, ponderosa	45	28	2,330
Pines, southern yellow:			
Pine, loblolly	53	36	3,000
Pine, longleaf	55	41	3,420
Pine, shortleaf	52	36	3,000
Pine, sugar	52	25	2,080
Pine, western white	35	27	2,250
Poplar, yellow	38	28	2,330
Redwood	50	28	2,330
Spruce, eastern	34	28	2,330
Spruce, Engelmann	39	23	1,920
Spruce, Sitka	33	28	2,330
Tamarack	47	37	3,080
Walnut, black	58	38	3,170

The new plastic armor for plywood... **Kimpreg***

ATTRACTIVE, PERMANENT. Kimpreg fused with Plywood gives America this remarkable material. It's smooth and flint-like—weather-proof, long-wearing, and washable. There is greater strength, greater water resistance in plywood surfaced with Kimpreg!

STRONG, STAINPROOF. Kimpreg is a thermo-setting phenolic resin sheet to be fused with plywood in manufacturing. Abrasion-resistant, scuff-proof, mar-resistant, impervious to alcohol, it's a material with amazing possibilities.



ADAPTABLE, ECONOMICAL. Kimpreg + Plywood is ideal for bars, kitchen counters, concrete forms—or wherever a durable surface is required. Combines the multiple advantages of plastic with the basic economy and workability of plywood. For complete information, mail the coupon today.

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PLASTIC SURFACING

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shakes, which are cracks following the annual rings, depends on their size and location. The weakening is least if they are located near the upper or lower edge of a timber and becomes greater as they approach the horizontal plane halfway between the upper and lower edges.

Resistance to Decay.—The length of time wood will remain free from decay (rot) depends on the conditions under which it is placed and on the kind of wood. Wood will not decay if kept thoroughly air-dry or if thoroughly saturated with water. Specimens have been taken from buildings several hundreds of years old in which the wood showed no signs of deterioration. Similarly, woods taken from the bottom of lakes or from old wells have been found sound after hundreds of years of submergence. Decay takes place most rapidly in wood kept damp and warm.

The sapwood of practically all woods is not durable and should never be used under conditions favorable for decay. In speaking of the relative durability of woods, the heartwood only should be considered. Woods in which the heartwood cannot easily be differentiated from the sapwood, on account of the light color of the heartwood, usually show relatively little durability, although Port Orford cedar is a notable exception. The lists in this section indicate the relative durability of common woods and should be an aid to the dealer in selecting the more durable species for posts, sills, sidewalks, and other structures subject to decay. It must be remembered, however, that woods vary in durability as they do in other properties, and exceptions may be found which, apparently, are not consistent with this classification.

Durability of wood is materially improved by specific preservatives and treatments.

Weight of Wood.—Wood used about the household is not usually selected with regard to its weight, although very light or very heavy furniture or utensils would not be as desirable as those of medium weight. The weight of dry lumber indicates the relative strength and hardness of wood. In general, heavy woods are stronger and harder than light pieces, whether of the same kind or different kinds. Light woods, as a rule, shrink and swell less than heavy woods, but there are some notable exceptions. Light woods also conduct less heat than heavy woods under the same conditions.

The weight of each kind of wood is quite variable. Mahogany, cotton gum, oak, and cypress are some of the most variable woods, the denser pieces of some of these species being fully twice as heavy as the lighter pieces.

A table in this section indicates the average weights of the principal native woods:

In this (as in all other sections of this Manual) we will try to show the different items of lumber plywood, etc. which are being sold by lumber and building products merchants in the United States and Canada today.

Because Lumber has a **use relation** to nearly every product in every other section of this manual, the cross reference technique will be used sparingly in this section. The lumber section should be studied with reference to all other sections and all other sections with reference to coordinated lumber utilization.

In addition to the sales items listed many consumer uses of the various lumber items customarily sold by retailer are shown. An opportunity is given for the merchant to decide and check what items he is going to sell in the current year and what consumer uses he will permit his organization to serve.

In this manner the salesman may become fully acquainted with just what he has to sell in both a product and service sense.

To assist the salesman, we are printing in the lower one-third of the pages of this section, rather complete definitions of the terms used in selling lumber, and other selling tips useful to the salesman.

Additional charts and illustrations will be found helpful to both salesman and management in the marketing of these products.

Special Note to Retail Management—

Throughout the following departments hundreds of items will have a checking space circumscribed by parenthetical brackets ( ) either before or after each item. These brackets enable management to establish merchandising policies and tell the entire organization what they can and cannot sell during the current year, saving untold hours of needless questioning and correspondence. The technique should be uniform throughout. The following check marks are suggested:

(√) to indicate that the item is normally to be stocked and serviced promptly.

(x) indicates the item may be sold subject to delayed procurement for the customer.

(o) indicates that the item is not to be sold or serviced at present without specific approval of management.

DOZE—An incipient form of decay characterized by a dull and lifeless appearance of the wood accompanied by a lack of strength and a softening of wood substance.

DRY ROT—A term loosely applied to many types of decay in lumber, but especially to that which, when in an advanced stage, permits the wood to be easily crushed to a dry powder. The term is actually a misnomer for any decay, since all fungi require considerable moisture for growth, and the wood must have been moist at the time the "dry rot" occurred.

DOWEL—A wood or steel pin let into two pieces of material where they are joined together. Also wood or steel pins set or driven into a wall so that other material may be fastened to them. See Joint.

DRESSED AND MATCHED (TONGUE AND GROOVE)—Boards or plant machined in such a manner that there is a groove on one edge and a corresponding tongue on the other.

EDGE GRAIN—From a purely mechanical point of view "Edge grain" lumber and quarter sawn lumber are exactly the same thing, but custom has decreed that the terms "Edge grain", "Vertical grain" and "Rift grain" (all of which mean the same) shall be applied to softwoods and the term "Quarter sawn" to hardwoods.

The principal advantages of edge grain sawing are as follows: it shrinks and swells less in width; it twists and cups less; it does not surface check or split so badly either in seasoning or in use; raised grain caused by annual rings does not become so pronounced; it wears more evenly; it does not allow liquids to pass into it or through it so readily; it holds paint better; the width of the sapwood appearing in a board is limited according to the width of the sapwood in the log.

It is commercial practice to call softwood lumber that has been sawn so that the annual rings stand at an angle of between 45 degress and 90 degrees with the surface of the piece edge grain. If they are at an angle of less than 45 degrees with the surface of the piece, the lumber is plain sawn.

END MATCHED—Most of the better grades of flooring, especially in widths narrower than three inch, are matched on the ends just the same as on the edges. End matching has the advantage of permitting joints between joists in laying, eliminating waste, and smoother, more serviceable floors are possible than would otherwise be the case.

END TRIMMED—This refers to the operation by which the ends of pieces of any kind of lumber are squared by cross cutting. It must necessarily be done after edging.

FACE COUNT—The tally of any item of lumber from face measurement exclusive of any mould or rabbet.

FACE MEASURE—The measurement across the face of any wood part exclusive of any solid mould or rabbet. The width of the face of any piece of lumber not including the tongue or lap.

FASCIA—A board fillet, band or face used sometimes by itself but usually in combinations with mouldings. See Cornice.

FEATHER—A small strip of wood inserted in the grooved edge of two pieces of board or plank to make a joint.

FIGURE—Figure is the pattern formed by peculiar or abnormal arrangement of the elements within the tree; by reflected light caused by that arrangement, or by the exposure of the medullary rays.

FLAKE, BROKEN—A breaking or loosening of the flake (medullary ray) of quartered material most frequent in oak.

FLAT GRAIN—Lumber that has been sawed parallel to the pith of the log and approximately tangent to the growth rings, that is, the rings form an angle of less than forty-five degrees with the surface of the piece. Same as "flat sawed", "plain sawed", and "slash grain".

FLITCH—A thick piece of lumber with wane (bark) on one or more edges.

FOOTAGE—The unit of lumber and timber measurement is the board foot (B.M.) and any reference to the number of board feet in any piece or collection of pieces is spoken of as "footage".

FORM LUMBER — Lumber that is adapted to the making of forms for concrete work. Many contractors are using Douglas fir plywood. It is tough and thin and can be used over and over again.

FRAMING, BALLOON—A system of framing a building in which all vertical structural elements of the bearing walls and partitions consist of single pieces extending from the top of the sole plate to the roof plate. See Fig. 1 of Details for House Framing.

FRAMING, BRACED—A system of framing a building in which all vertical structural elements of the bearing walls and partitions, except corner posts, extend for one story only, starting at the foundation sill for the first

Lumber, Plywood & Related Items

SIZES AND GRADES

Dimensions		No. 1	No. 2
2 x 4	8 to 20	( )	( )
2 x 4	22 to 24	( )	( )
2 x 6	8 to 20	( )	( )
2 x 6	22 to 24	( )	( )
2 x 8	8 to 20	( )	( )
2 x 8	22 to 24	( )	( )
2 x 10	8 to 20	( )	( )
2 x 10	22 to 24	( )	( )
2 x 12	8 to 20	( )	( )
2 x 12	22 to 24	( )	( )

LENGTHS

Timbers	10	12	14	16	18	20	22	24
3 x 6	( )	( )	( )	( )	( )	( )	( )	( )
3 x 8	( )	( )	( )	( )	( )	( )	( )	( )
3 x 10	( )	( )	( )	( )	( )	( )	( )	( )
3 x 12	( )	( )	( )	( )	( )	( )	( )	( )
4 x 4	( )	( )	( )	( )	( )	( )	( )	( )
4 x 6	( )	( )	( )	( )	( )	( )	( )	( )
6 x 6	( )	( )	( )	( )	( )	( )	( )	( )
6 x 8	( )	( )	( )	( )	( )	( )	( )	( )
8 x 8	( )	( )	( )	( )	( )	( )	( )	( )
10 x 10	( )	( )	( )	( )	( )	( )	( )	( )
12 x 12	( )	( )	( )	( )	( )	( )	( )	( )

Lumber

SPECIES

	YP	Fir	Hem-lock	Spruce	Other
2" Dimensions	( )	( )	( )	( )	( )
3" Plank	( )	( )	( )	( )	( )
Timbers	( )	( )	( )	( )	( )
Shiplap and D & M	( )	( )	( )	( )	( )
Sheathing	( )	( )	( )	( )	( )
Ceiling	( )	( )	( )	( )	( )
Drop Siding	( )	( )	( )	( )	( )
1 x 6 Flooring	( )	( )	( )	( )	( )
1 x 4 Flooring F. G.	( )	( )	( )	( )	( )
1 x 4 Flooring V. G.	( )	( )	( )	( )	( )

	Red Cedar	Redwood	Cypress	Other
½ x 4 Siding	( )	( )	( )	( )
½ x 6 Siding	( )	( )	( )	( )
¾ x 8 to 10" Bung. Sdg.	( )	( )	( )	( )
5/4x 8 to 10" Bung.Sdg.	( )	( )	( )	( )

Lumber

SIZES AND GRADES

Boards	B & Btr.	C & Btr.	D Select	No. 1	No. 2	No. 3	No. 4	No. 5
1 x 4 8/20	( )	( )	( )	( )	( )	( )	( )	( )
1 x 6 8/20	( )	( )	( )	( )	( )	( )	( )	( )
1 x 8 8/20	( )	( )	( )	( )	( )	( )	( )	( )
1 x 10 8/20	( )	( )	( )	( )	( )	( )	( )	( )
1 x 12 8/20	( )	( )	( )	( )	( )	( )	( )	( )
1 x 4 & wider Random Lengths	( )	( )	( )	( )	( )	( )	( )	( )
5/4 x 4 & Wider	( )	( )	( )	( )	( )	( )	( )	( )
8/4 x 4 & Wider	( )	( )	( )	( )	( )	( )	( )	( )

( ) Native Lumber (Green)
( ) 2" Dimensions
( ) 1" Boards

LIGHT CONSTRUCTION USES FOR LUMBER

( ) Additions
( ) Alterations
( ) Beams
( ) Beam Plates
( ) Bridging
( ) Ceiling Joists
( ) Collar Beams
( ) Cornice Level
( ) First Floor Joists
( ) Flooring
( ) Furring
( ) Gable Studs
( ) Grounds—Dr. Lath
( ) Gutters
( ) Millwork
( ) Plates
( ) Posts
( ) Rafters
( ) Repairs
( ) Second Floor Joists
( ) Sheathing—Floor
( ) Sheathing—Roof
( ) Sheathing—Wall
( ) Siding
( ) Stair Material—Basement
( ) Studs

PACKAGES

Light Construction Packages Built with Lumber as a Primary Material.

( ) Aerodrome Buildings.
( ) Band Stands.
( ) Barns (See Farm Section for additional Agricultural Buildings).
( ) Bath Houses.
( ) Bird Houses (See Lawn & Garden Dept.)
( ) Boat Houses (See Lawn & Garden Dept.)
( ) Bungalows.
( ) Bunk Houses.
( ) Fishing Huts.
( ) Garages (See Garage Section 00-00)
( ) Greenhouses (See Lawn & Garden Dept.)
( ) Houses
( ) Hunting Lodges.
( ) Lake Cottages.
( ) Log Cabins
( ) Outhouses.

(Lists continued following House Cross Section)

story framing and at the top plate of the story below for all stories above the first. Corner posts extend from foundation sill to roof plate and are braced by diagonal members usually extending the full height of each story and crossing several of the studs on each side.

FRAMING, PLATFORM—A system of framing a building on which floor joists of each story rest on the top plates of the story below—on the foundation sill for the first story—and the bearing walls and partitions rest on the subfloor of each story.

FRIEZE—Any sculptured or ornamental band in a building. Also the horizontal member of a cornice set vertically against the wall. That part of an entablature which is between the architrave and the cornice.

FURRING—Strips of wood or metal applied to a wall or other surface to even it to provide an air space or to give it a thickened appearance, usually as a base for the application of some type of wall covering.

GIRDER—Same as beam. Where beams of different sizes are used in the same structure, the main beams only are termed girders. Girders may be either solid or built-up.

GIRDER SUPPORTS OR GIRDER POSTS—Columns placed so as to support girders or beams.

GIRT—One of the horizontal members of the frame of a building or other structure, located between the sill and the plate, to which vertical sheathing or other covering is attached.

GRADE—In lumber any of the quality classes into which lumber is segregated for marketing and use purposes.

GRAIN—The direction, size, arrangement, appearance, or quality of the fibers in wood.

GRAIN CHARACTER—The pattern produced by cutting through growth rings and exposing the layers of springwood (porous) and summerwood (dense) and of prominent vessels, thus producing a varying pattern.

GRAIN, CLOSE—Lumber with narrow and inconspicuous annual rings. The term is sometimes used to designate wood having small and closely spaced pores, but in this sense the term "fine textured" is more often used.

GRAIN, COARSE—Lumber with wide and conspicuous annual rings in which there is considerable difference between springwood and summerwood. The term is also used to designate wood with large pores, but in this sense the term "coarse textured" is more often used.

GRAIN, CROSS—Lumber in which the cells or fibers do not run parallel with the axis or sides of a piece.

GRAIN, DIAGONAL—Annual rings at an angle with the axis of a piece as a result of sawing at an angle with the bark of the tree.

GRAIN, EDGE (VERTICAL)—Lumber in which the rings or grain form an angle of 45 degrees or more with the surface of the piece.

GRAIN, PLAIN SAWN—Another term for flat grain, and used generally in hardwoods.

GRAIN, QUARTER SAWN—Another term for edge grain, and used generally in hardwoods.

GRAIN, RUPTURED—A condition of slight breaks in the veneer caused by irregular grain or improper cutting.

GREEN LUMBER—Lumber that is unseasoned. It is unseasoned when the moisture content is greater than that of air dried stock which is (in most parts of the country) considered to be 12 percent.

GROUNDS—Strips of wood of same thickness as lath and plaster which are attached to walls before the plastering is done. Used around windows, doors and other openings as a plaster stop and in other places for attaching base boards or other trim. Grounds should be ⅞ inch wide and thickness of lath and plaster. Estimate a single strip around all window and door openings which receive trim, and for base.

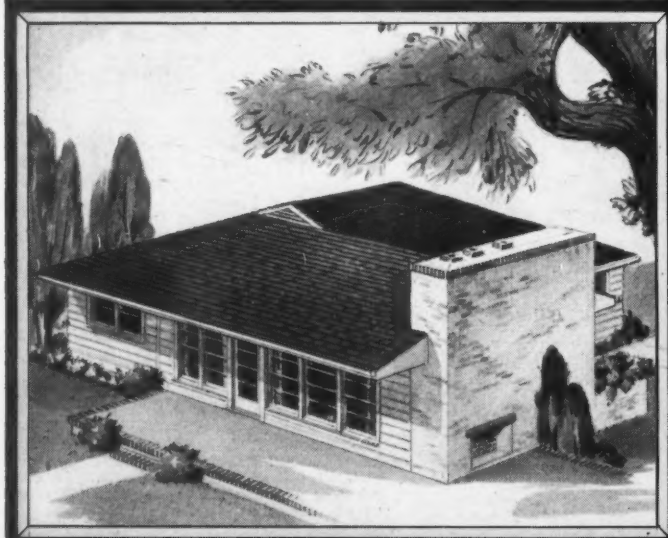
HALF-ROUND—A method of cutting veneer to bring out certain grain character, accomplished in a manner similar to rotary cutting except that the piece being cut is mounted, off center, on a "stay log", a device that permits the cutting of the long on a wider sweep.

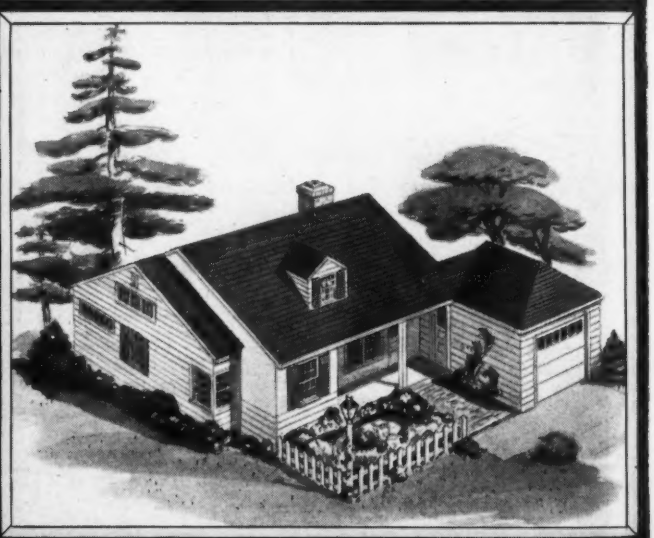
HAIR LINE—A thin perceptible line usually showing at a joint.

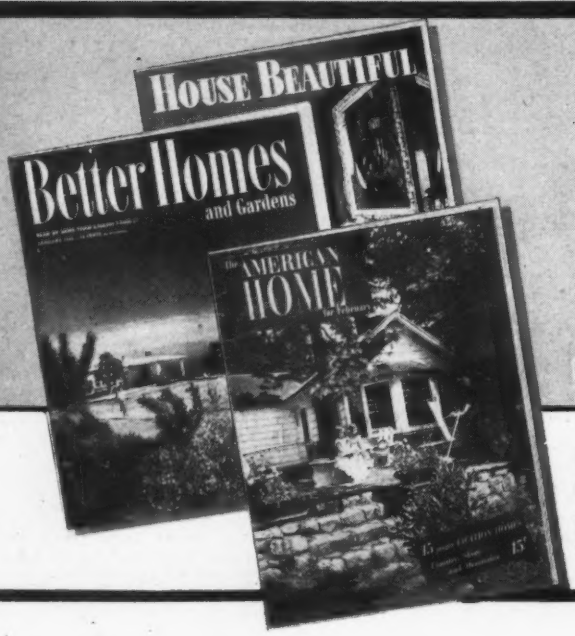
HARDNESS—Woods vary so greatly in their degree of hardness that the following table is presented to provide a comparison. Hardness and density are very closely related and, generally speaking, the hardest woods are the most dense and consequently the strongest. This cannot be accepted as a hard and fast rule but it may be of use in comparison where absolute accuracy is not important. Neither can this table be taken as absolutely accurate under all circumstances and conditions, for the results of any test are likely to vary according to the point in the piece where test is made, the section of the log, and the climate and locality where the log was cut. The figures express the average of a number of tests and indicate, in pounds, the load required to indent a 0.444 inch steel ball to one half its diameter. The wood at 12 percent of moisture content.

(Continued on Page 45)

Keeping ahead







SINCE JANUARY 1ST THESE MODERN DESIGNS HAVE BEEN ADDED TO THE EVER-GROWING WEYERHAEUSER 4-SQUARE HOME BUILDING SERVICE

● Each month in one of the leading national shelter magazines Weyerhaeuser advertises to millions the current month's design selection. Each month home planners are invited to use this Service which is available at the offices of retail lumber dealers—their local shelter merchants.

with the

WEYERHAEUSER 4-SQUARE HOME BUILDING SERVICE

● Where should the small home prospect go for new ideas, plans, building information, and advice?

In the majority of American communities he should go to the retail lumber dealer and his cooperating contractor customers.

The lumber dealer is the logical shelter merchant, since he furnishes the materials when small homes are being built. He should therefore logically furnish practical guidance when small homes are being planned.

To help the retail lumber dealer supply this type of planning service, Weyerhaeuser developed the 4-SQUARE Home Building Service Program.

No Home Service Equals It

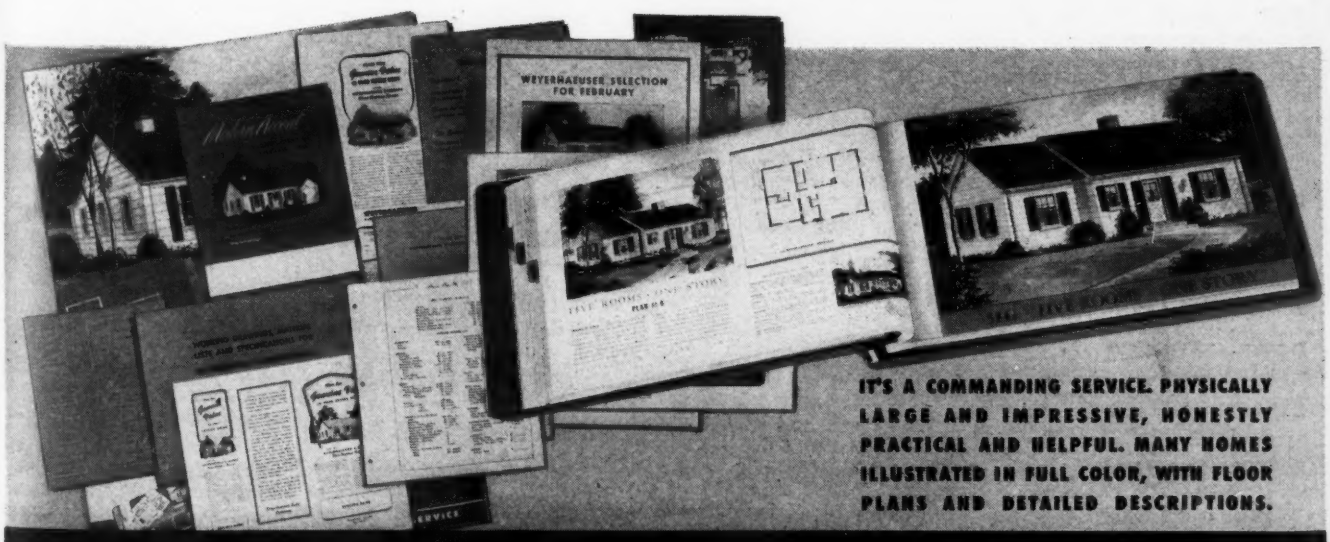
The 4-SQUARE Home Building Service contains scores of house designs complete with working drawings, specifications, and material lists. It clearly outlines and illustrates the fundamental principles of sound and economical construction. It also outlines the fundamental principles of planning for utmost economy, convenience, and final satisfaction. It contains detailed material lists for ordering out materials. It contains consolidated material lists for use with estimating guides for obtaining preliminary costs.

A New Home Each Month

The 4-SQUARE Home Building Service is kept continually up-to-date through monthly additions of house designs illustrating many of the new developments and improvements in home building which have been proved in actual use.

The Service and the retail lumber dealer's part in it are advertised every month to millions of readers interested in homes. The entire program forms a comprehensive effort to direct home prospects to retail dealers cooperating with Weyerhaeuser.

WEYERHAEUSER SALES CO.
SAINT PAUL 1, MINNESOTA



IT'S A COMMANDING SERVICE. PHYSICALLY LARGE AND IMPRESSIVE, HONESTLY PRACTICAL AND HELPFUL. MANY HOMES ILLUSTRATED IN FULL COLOR, WITH FLOOR PLANS AND DETAILED DESCRIPTIONS.

WEYERHAEUSER
4-SQUARE LUMBER AND SERVICES

Standard Lumber Abbreviations

The following standard lumber abbreviations are in common use in contracts and other documents arising in the transactions of purchase and sale of lumber:

AD—air dried.

a. l.—all lengths.

av.—average.

av. w.—average width.

av. l.—average length.

a. w.—all widths.

BlS—beaded one side.

B2S—beaded two sides.

BBS—box bark strips.

bd.—board.

bd. ft.—board foot; that is, an area of 1 square foot by 1 inch thick.

bdl.—bundle.

bdl. bk. s.—bundled bark strips.

Bev.—beveled.

b. m.—board (foot) measure.

Btr.—better.

Clg.—ceiling.

Clr.—Clear.

CM.—Center matched; that is, the tongue-and-groove joints are worked along the center of the edges of the piece.

Com.—common.
Csg.—casing.
Ctg.—crating.
cu. ft.—cubic foot.

D&M—dressed (1 or 2 sides) and center matched.

D&H—dressed and headed; that is, dressed 1 or 2 sides and worked to tongue-and-groove joints on both the edge and the ends.

D&CM — dressed (1 or 2 matched) that is, dressed 1 or 2 sides and tongued and grooved on the edges. The match may be center or standard.

D&SM—dressed (1 or 2 sides) and standard matched.

D2S&CM—dressed two sides and center matched.

D2S&M—dressed two sides and (center or standard) matched.

D2S&SM—dressed two sides and standard matched.

Dim.—dimension.

D. S.—drop siding.

E—edge.

E&CB1S—edge and center bead 1 side; surfaced 1 or 2 sides and with a longitudinal edge and center bead on a surfaced face.

E&CB2S—edge and center bead 2 sides; all 4 sides surfaced and with a longitudinal edge and center bead on the 2 faces.

ECM—ends center matched.

E&CV1S—edge and center V 1 side; surface 1 or 2 sides and with a longitudinal edge and center V-shaped groove on a surfaced face.

E&CV2S—edge and center V 2 sides; all 4 sides surfaced and with a longitudinal edge and center V-shaped groove on each of the 2 faces.

E. G.—edge grain.

EM—end matched—either center or standard.

ESM—ends standard matched.

FAS—first and seconds—a combined grade of the two upper grades of hardwoods.

f. bk.—flat back.

fcty.—factory (lumber).

F. G.—flat grain.

Flg.—flooring.

f. o. k.—free of knots.

Frm.—framing.

ft.—foot or feet. Also one accent (').

feet b. m.—feet board measure.

feet s. m.—feet surface measure.

G. R.—grooved roofing.

H. bk.—hollow back.

Hdl.—handle (stock).

hdwd.—hardwood.

Hrt.—heart.

Hrtwd.—heartwood.

1s&2s.—ones and twos—a combined grade of the hardwood grades of firsts and seconds.

in.—inch or inches. Also two accent marks (").

Kd.—kiln-dried.

k. d.—knocked down.

lbr.—lumber.

lgth.—length.

lgr.—longer.

lin. ft.—linear foot; that is, 12 inches.

Lng.—lining.

LR.—log run.

Lr. MCO.—log run, mill culls out.

Lth.—lath.

M.—thousand.

M. b. m.—thousand (feet) board measure.

MCO.—mill culls out.

Merch.—merchantable.

m. l.—mixed lengths.

Mldg.—moulding.

MR.—mill run.

M. s. m.—thousand (feet) surface measure.

m. w.—mixed widths.

No.—number.

Ord.—order.

P.—planed.

Pat.—pattern.

Pky.—pecky.

Pln.—plain, as plain sawed.

Pn.—partition.

Qtd.—quartered—when referring to hardwoods.

rdm.—random.

res.—resawed.

Rfg.—roofing.

Rfrs.—roofers.

rip.—ripped.

r. l.—random lengths.

rnd.—round.

R. Sdg.—rustic siding.

r. w.—random widths.

S&E.—surfaced 1 side and 1 edge.

S1E.—surfaced one edge.

S2E.—surfaced two edges.

S1S.—surfaced one side.

S2S.—surfaced two sides.

S1S1E.—surfaced 1 side and 1 edge.

S2S1E.—surfaced 2 sides and 1 edge.

S1S2E.—surfaced 1 side and 2 edges.

S4S.—surfaced four sides.

S4SCS.—surfaced four sides with a calking seam on each edge.

S&CM—surfaced 1 or 2 sides and center matched.

S&M—surfaced and matched; that is, surfaced 1 or 2 sides and tongued and grooved on the edges. The match may be center or standard.

S&SM.—surfaced 1 or 2 sides and standard matched.

S2S&CM.—surfaced two sides and center matched.

S2S&M.—surfaced two sides and center or standard matched.

S2S&SM. — surfaced two sides and standard matched.

Sap.—sapwood.

SB.—standard bead.

Sd.—seasoned.

Sdg.—Siding.

Sel.—select.

S. E. Sdg.—square-edge siding.

s. f.—surface foot; that is, an area of 1 square foot.

Sftwd:—softwood.

Sh. D.—shipping dry.

Shlp.—shiplap.

s. m.—surface measure.

SM—standard matched.

smkd.—smoked (dried).

smk. stnd.—smoke stained.

s. n. d.—sap no defect.

snd.—sound.

sq.—square.

Sq. E. & S.—square edge and sound.

Sqrs.—squares.

Std.—standard.

stnd.—stained.

stk.—stock.

S. W.—sound wormy.

T&G—tongued and grooved.

TB&S—top, bottom, and sides.

Tbrs.—timbers.

Thickness—4/4, 5/4, 6/4, 8/4, etc. = 1 inch, 1¼ inches, 1½ inches, 2 inches, etc.

V1S—V 1 side; that is, a longitudinal V-shaped groove on 1 face of a piece of lumber.

V2S—V 2 sides; that is, a longitudinal V-shaped groove on 2 faces of a piece of lumber.

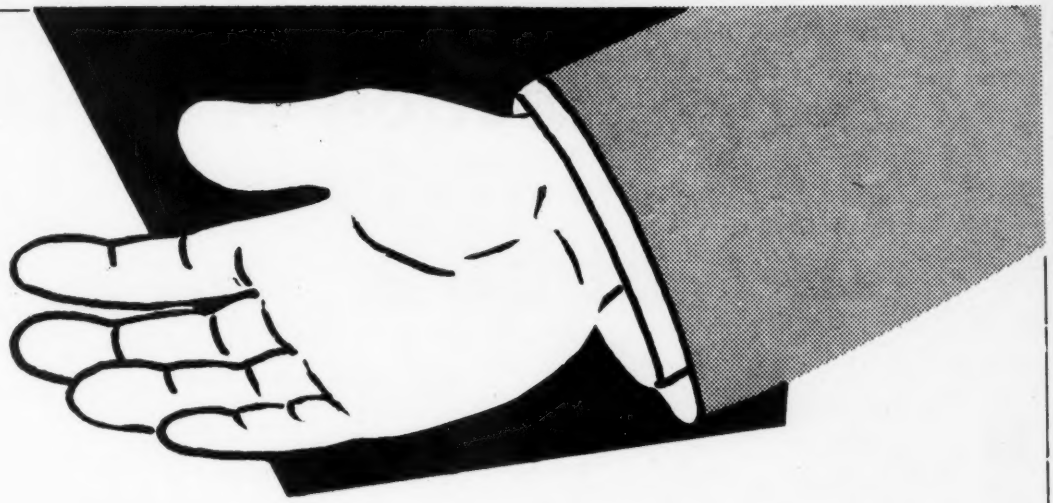
V. G.—vertical grain.

w. a. l.—wider, all lengths.

Wth.—width.

Wdr.—wider.

wt.—weight.



For 31 years you've been our friend Mr. Retail Lumber Dealer

THIRTY-ONE YEARS have passed since the Wendling-Nathan business started. Through the years it has been our good fortune to win the good-will and patronage of hundreds of retail lumber dealers. This business friendship and co-

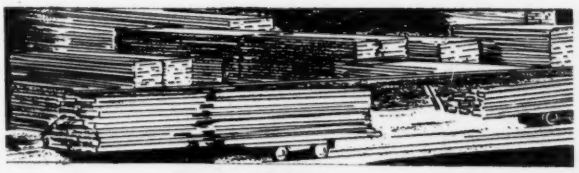
operation of the retail trade have been the reason why this company has gone continuously forward.

Wendling-Nathan Company, under the same name and management, has weathered the business storms of these 31 years. Today we face the future with confidence and hope.

Since the beginning our fixed and firm policy has been to maintain highest standards of service to the dealer. Always it has been our aim and pledge that the products we supply should be of highest quality and dependability.

Abnormal conditions in recent times have prevented our giving the kind of service we should like to give. But conditions are changing. And our promise to you, Mr. Dealer, is that at the earliest possible moment we will again be taking care of all your lumber needs in the most efficient way — with better products and better service than ever before.

In the meantime, thanks for your patience and your confidence.



Wholesale Distributor of California Sugar Pine, Ponderosa Pine, Redwood, Douglas Fir, Red Cedar Shingles, Douglas Fir Plywood.

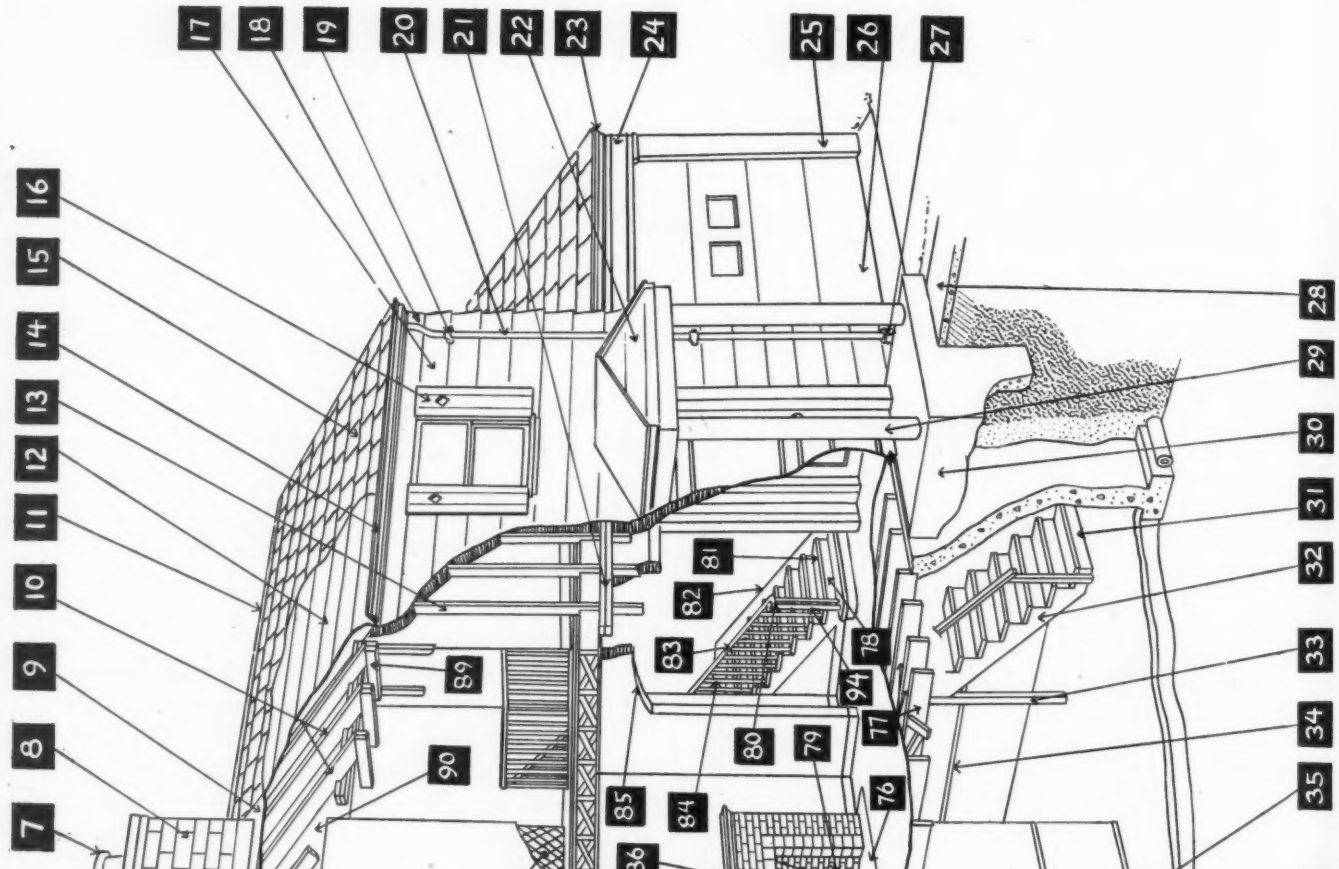
Wendling-Nathan Company

707 Pittock Block,
Portland, Oregon

MAIN OFFICE
564 Market St.,
San Francisco

5225 Wilshire Blvd.,
Los Angeles

Cross Section of a Home



Lumber, Plywood & Related Items

( ) Pergolas (See Lawn & Garden Dept.)
( ) Play Houses.
( ) Portable Buildings (See Section 00-00).
( ) Retail Stores.
( ) Roadside Stands.
( ) Silos.
( ) Summer Houses.
( ) Tourist Cabins.

Softwood

HEAVY CONSTRUCTION ITEMS FOR LUMBER AND KINDRED PRODUCTS.
HEAVY CONSTRUCTION USES.

( ) Beams.
( ) Crossing Planks.
( ) Decking.
( ) Girders.
( ) Laminated Arches.
( ) Laminated Trusses.
( ) Mine Timbers.
( ) Piling.
( ) Planks.
( ) Poles.
( ) Posts.
( ) Sheet Piling.
( ) Telephone Poles.
( ) Ties.
( ) Timbers.
( ) Aeroplane Hangers.
( ) Apartment Buildings.
( ) Barracks.
( ) Bridges.
( ) Coal Sheds.
( ) Coal Silos.
( ) Concrete Forms.
( ) Country Clubs.
( ) Churches.
( ) Factories.
( ) Foundries.
( ) Grain Elevators.
( ) Gymnasiums.
( ) Highway Guards and Posts.
( ) Hotels.
( ) Ice Houses.
( ) Lumber Sheds.
( ) Office Buildings.
( ) Oil Derricks.
( ) Piers.
( ) Piling.
( ) Platforms.
( ) Posts.
( ) Schools.
( ) Sea Walls.
( ) Stadiums.
( ) Theaters.
( ) Timber Connectors.
( ) Warehouses.

Write your Lumber Manufacturing suppliers (see Purchasing Directory) or the Lumber Manufacturers associations listed for applications, details, etc.

Write Timber Engineering company, Washington, D. C. for full information and counsel on use of timber connectors in heavy construction.

Lumber

SOME INDUSTRIAL USES FOR SOFTWOOD LUMBER.

( ) Auto Trailers.
( ) Booths.
( ) Boxes.
( ) Car Material.
( ) Crates.
( ) Crating.
( ) Factory & Shop Lumber.
( ) Patterns.
( ) Templates.

MISCELLANEOUS USES FOR SOFTWOOD LUMBER.

( ) Aromatic Cedar.
( ) Chests.
( ) Closet Lining.
( ) Shelving.
( ) Wardrobes.
( ) Knotty Pine Panelling.
( ) Billboards.
( ) Boats.
( ) Fences.
( ) Flag Poles.
( ) Grates.
( ) Highway Fences.
( ) Manual Training.
( ) Palettes.
( ) Sidewalks.
( ) Snow Fences.
( ) Tanks.

A "Must" book to use in connection with this reference number is

LUMBER

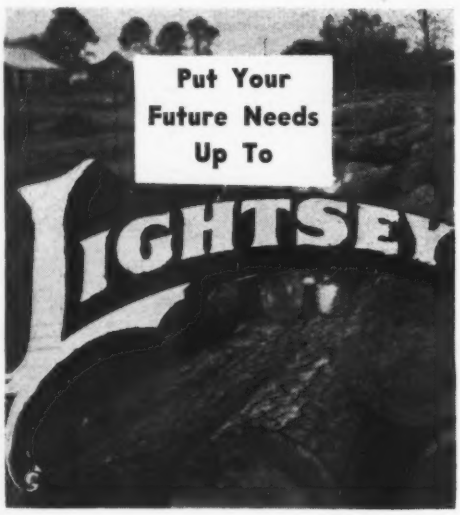
American Lumber Standards for Softwood Lumber Simplified Practice Recommendations R 16—39

Published by
U. S. Department of Commerce, Washington, D. C.
Send for this without fail.

DESCRIPTION OF NUMBERED PARTS IN HOUSE CROSS SECTION

1—Gable stud
2—Collar beam
3—Ceiling joist
4—Ridge board
5—Insulation
6—Chimney cap
7—Chimney pots
8—Chimney
9—Chimney flashing
10—Rafters
11—Ridge
12—Roof boards
13—Stud
14—Eave trough or gutter
15—Roofing
16—Blind or shutter
17—Bevel siding
18—Downspout or leader gooseneck
19—Downspout or leader strap
20—Downspout, leader or conductor
21—Double plate
22—Entrance canopy
23—Garage cornice
24—Frieze
25—Door jamb
26—Garage door
27—Downspout or leader shoe
28—Sidewalk
29—Entrance post
30—Entrance platform
31—Basement stair riser
32—Stair stringer
33—Girder post
34—Chair rail
35—Cleanout door
36—Furring strips
37—Corner stud
38—Girder
39—Cinder or gravel fill.
40—Concrete basement floor
41—Footing for foundation wall
42—Paper strip
43—Foundation drain tile
44—Diagonal subflooring
45—Foundation wall
46—Sill
47—Backfill
48—Termite shield
49—Areaway wall
50—Grade line
51—Basement sash
52—Areaway
53—Corner brace
54—Corner studs
55—Window frame
56—Window light
57—Wall studs
58—Header
59—Window cripple
60—Wall sheathing
61—Building paper
62—Pilaster
63—Rough header
64—Window stud
65—Cornice moulding
66—Frieze or barge board
67—Window casing
68—Lath
69—Insulation
70—Wainscoting
71—Baseboard
72—Building paper
73—Finish floor
74—Ash dump
75—Door trim
76—Fireplace hearth
77—Floor joists
78—Stair riser
79—Fire brick
80—Newel cap
81—Stair tread
82—Finish stringer
83—Stair rail
84—Balusters
85—Plaster arch
86—Mantel
87—Floor joists
88—Bridging
89—Lookout
90—Attic space
91—Metal lath
92—Window sash
93—Chimney breast
94—Newel

"Where Quality Counts, We Win"



We have maintained this slogan for many, many years, including the war period, because we have maintained high quality at all times in our lumber and products. At the present time we are in position to entertain a few more inquiries for quality lumber — and if this is what you want, we will be pleased to hear from you.

N. C. Pine, Cypress, Hardwoods
Modern Band Mill and Planing Mill

Lightsey Brothers

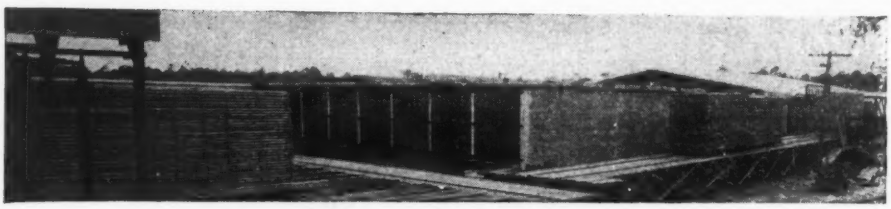
MILEY, S. CAR.

80,000 Feet Daily **Mixed Car Shipments**

FLOORING A SPECIALTY

NOFMA CERTIFIED OAK FLOORS

END MATCHED
PINE, OAK, MAPLE
and
GUM FLOORING



View of Our Modern Moore Cross-Circulation Kilns

FORDOM FORES 1 PRODUCTS CORPORATION

Importers of World-Wide Woods

Specialty

Logs for veneer & plywood manufacturing

MAHOGANY, GABOON OKOUME, NIGERIAN SAPELE
EAST INDIAN TEAK, ROSEWOOD, CEYLON
SATINWOOD, etc. ALSO SAWLOGS & LUMBER

52 Vanderbilt Avenue **New York 17, N. Y.**

Southern Quality Lumber

There will always be dependable quality lumber produced in the South. For more than 25 years, we have been constantly on the alert to improve production methods and our service to our customers—and we are getting back to normal production so that soon we can take care of all requirements of our customers.

★

LONGLEAF AND SHORTLEAF YELLOW PINE

TIDEWATER RED CYPRESS

SOUTHERN HARDWOODS

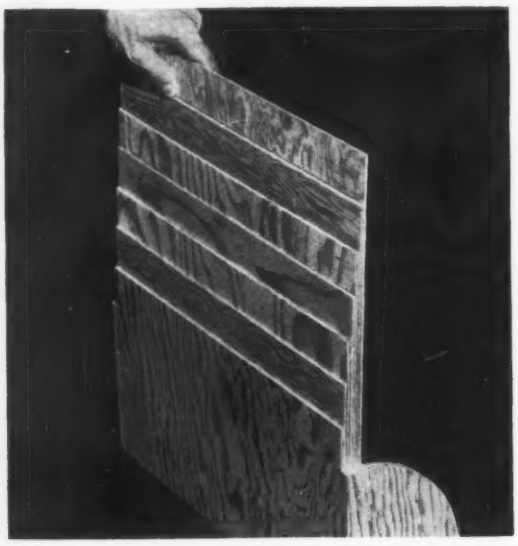
★

We have facilities for kiln drying, dressing and resawing and for mixed car shipments. Our favorable location also enables us to efficiently handle boat shipments to foreign, East and West Coast ports.

Reynolds & Manley Lumber Co.

LUMBER MANUFACTURERS

SAVANNAH, GEORGIA

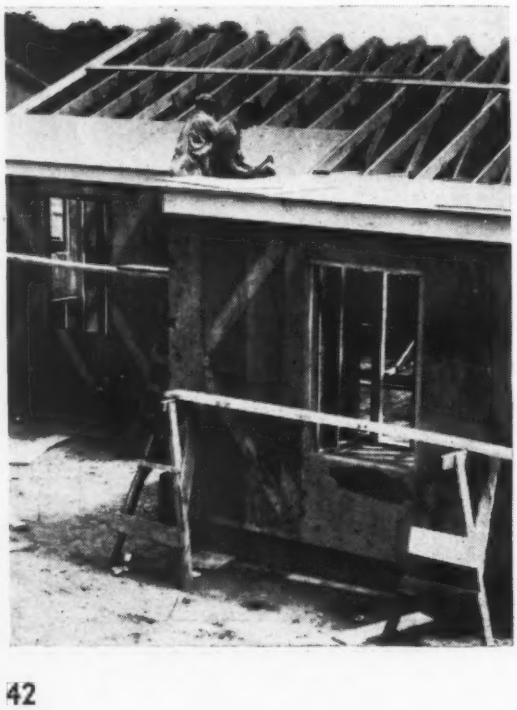


PLYWOOD

NECESSARY to successful plywood retailing is a sound organization of the dealer's facilities for handling his stock of that material, and the determination, specifically, of the items which should compose that stock.

That is a problem which must be worked out by the individual dealer concerned in accordance with his particular markets. However, there are certain basic principles, and certain considerations bearing upon the problem that should be in mind when a basic inventory is being compiled.

Plywood has been handicapped in the past by a certain amount of misuse. To some extent the blame belongs to the retailer. Because his plywood stock did not contain the exact type of panel that was needed for a certain use, another type was sold—one entirely unsuited to the particular purpose, and unsatisfactory performance was the result. This abuse occurred most frequently and was most serious in the case of selling interior grades of plywood for exterior uses. Many dealers did not stock exterior grades, and marred the reputation of plywood when the material they sold did not stand up indefinitely under weather.



The dealer must be fully prepared to supply the proper type of plywood for any job; either from his own stock or on a two or three day delivery basis. The distribution system of the plywood industry is particularly well adapted to this service. There are in most trading centers plywood wholesale houses who specialize in ultra quick delivery. There are but few dealers who are more than an overnight haul from some plywood distributing center.

Therein lies a key to most retail lumber dealers' plywood inventory problem. They should stock those items which have the largest turnover and rely on their quick-delivery warehouse connections for the slower moving (and usually more expensive) items of plywood merchandise. It would be safe to say that for most average dealers the latter category would include most if not all of the fancy hardwood wall panels. This is not to say that selling effort should be less intense on these items than upon the fir and other softwood types. It is recommended that a complete line of properly finished sample panels of all the hardwood types readily available in standard sizes be kept handy for display purposes.

While this policy is the wisest for some plywood items it is definitely discouraged for others. If a dealer is going to take advantage of the sales opportunities offered by plywood he must maintain a basic inventory of the most-called-for items.

Top notch lumber and building materials merchandisers are day by day increasing their concentration on the sale of the final product (the modernized kitchen, the package home, the complete game room) instead of on building materials as such. The principle is one to be applied to many sales of plywood as well. In selling plywood for kitchen cabinets the item to demonstrate is a sample. In selling it for farm uses, sell a clean, tight dairy barn or milk house wall, sell a completed hog house or poultry structure.

Lumber, Plywood & Related Items

Plywood

SALES ITEMS — SOFTWOOD PLYWOOD

Fir Plywoods and Wallboards

Fir Wallboard, Sound 1 Side, Sanded 2 Sides

( ) 4 x 6 ¼" 3 ply
( ) 4 x 7 ¼" 3 ply
( ) 4 x 8 ¼" 3 ply
( ) 4 x 9 ¼" 3 ply
( ) 4 x 10 ¼" 3 ply

Fir Panels, Sound 2 Sides, Sanded 2 Sides

( ) 4 x 8 ⅛" 3 ply
( ) 4 x 6 ¼" 3 ply
( ) 4 x 7 ¼" 3 ply
( ) 4 x 8 ¼" 3 ply
( ) 4 x 9 ¼" 3 ply
( ) 4 x 10 ¼" 3 ply
( ) 4 x 6 ⅜" 3 ply
( ) 4 x 8 ⅜" 3 ply
( ) 3 x 6 ⅜" 3 ply
( ) 4 x 6 ½" 5 ply
( ) 4 x 8 ½" 5 ply
( ) 3 x 6 ½" 5 ply
( ) 4 x 6 ⅝" 5 ply
( ) 4 x 8 ⅝" 5 ply
( ) 3 x 6 ⅝" 5 ply
( ) 4 x 6 ¾" 5 ply
( ) 4 x 8 ¾" 5 ply
( ) 3 x 6 ¾" 5 ply

Ping-Pong Table Tops

Fir Plywood, Sound 2 Sides, Sanded 2 Sides

Two Pieces 60 x 54 to make One Top

( ) 60" x 54" ⅝" 5 ply

White Pine Plywood

( ) 4 x 8 ¾" S2S 5 ply
( ) 4 x 8 ⅜" S2S 3 ply
( ) 4 x 8 ¼" S2S 3 ply

Write Douglas Fir Plywood Association, Tacoma, Washington for complete information on Softwood Plywood

The following table shows minimum radii to which plywood panels of various thicknesses can be bent:

⅛" lengthwise, minimum radius 15 inches
crosswise, minimum radius 8 inches
¼" lengthwise, minimum radius 24 inches
crosswise, minimum radius 15 inches
⅜" lengthwise, minimum radius 54 inches
crosswise, minimum radius 36 inches
½" lengthwise, minimum radius 8 feet
crosswise, minimum radius 6 feet
⅝" lengthwise, minimum radius 10 feet
crosswise, minimum radius 8 feet
¾" lengthwise, minimum radius 12 feet
crosswise, minimum radius 10 feet

1. Buildings, Light Framed or Light Joisted Construction, Rough Carpentry.

Use-Item	Grades Recommended	Thickness Commonly Used	
Walls and Partitions			
Sheathing	(Plyscord) Sheathing	5/16"	( )
Floors and Roofs			
Subflooring	(Plyscord) Sheathing	½", ⅝"	( )
Roof Sheathing	(Plyscord) Sheathing	5/16", ⅜", ½", ⅝"	( )
Roof Decking Flat Covered	(Plyscord) Sheathing	½", ⅝"	( )
Roofing	S01S (resin-bonded) Exterior Type	⅜" & thicker	( )
Cellar and Attic			
Treads & Risers	(Plywall) WB or (Plypanel) S02S	½" ⅝"	( ) ( )

2. Buildings, Heavy Framed, Heavy Joisted, or Heavy Timbered Mill Construction, Rough Carpentry.

Use-Item	Grades Recommended	Thickness Commonly Used	
Plank Decking, Floors and Roofs, Tongued and Grooved, or Splined	(Plypanel) S02S (milled as desired)	⅝" & thicker	( )
Subflooring*	(Plypanel) S02S or Sheathing	⅝" & thicker	( )
Partitions (tongued and grooved or splined)	(Plypanel) S02S (milled as desired)	⅝" & thicker	( )
Partitions (stud framed)	(For lining, see 1)		
Stair Treads and Risers	(Plypanel) S02S	⅝" & thicker	( )
Heavy Shelving	(Plypanel) S02S	⅝" & thicker	( )
Roof Trusses Gusset Plates	Special Mill Order		

RELATIVE HARDNESS

	End	Side
Alder (Red)	980	590
Ash (White)	1680	1260
Ash (Oregon)	1430	1160
Aspen	510	350
Basswood	520	410
Beech	1590	1300
Birch	1660	1340
	End	Side
Birch (Paper)	890	910
Butternut	570	490
Cedar (Alaska)	790	580
Cedar (Aromatic Red)	900	...
Cedar (Incense)	830	470
Cedar (Northern white)	450	320
Cedar (Port Orford)	730	560
Cedar (Southern white)	520	350
Cedar (Western red)	660	350
Cherry (Black)	1470	950
Chestnut	720	540
Cottonwood	580	430
Cypress (Bald)	660	510
Elm (American)	1110	...
Elm (Slippery)	1120	860
Fir (Douglas)	750	640
Fir (Balsam)	510	400
Fir (Commercial white)	710	460
Gum (Red or sweet)	950	690
Gum (Black or tupelo)	1240	810
Hackberry	1110	880
	End	Side
Hemlock (Eastern)	810	500
Hemlock (Western)	940	580
Hickory (Pecan)	1930	1820
Locust (Black)	1580	1700
Magnolia (Cucumber)	950	700
Magnolia (Evergreen)	1280	1020
Maple (Silver)	1140	700
	End	Side
Maple (Sugar)	1840	1450
Oak (Red)	1490	1300
Oak (White)	1420	1300
Pine (Northern wht.)	500	400
Pine (Ponderosa)	550	450
Pine (Idaho)	440	370
Pine (Loblolly)	750	690
Pine (Shortleaf)	750	690
Pine (Longleaf)	920	870
Poplar (Yellow)	560	450
Redwood	790	480
Spruce (Eastern)	630	490
Spruce (Engelman)	450	310
Spruce (Sitka)	760	510
Sycamore	920	770
Tamarack	670	590
Walnut	1050	1010

HARDWOOD—The botanical group of trees that are broadleaved. The term has no reference to the actual hardness of the wood.

HARDWOOD DIMENSION—To quote the definition of this term as adopted by the Hardwood Dimension Manufacturer's Association, "Hardwood dimension is hardwood lumber refined to the point where maximum waste is left at the mill and the maximum usable material is delivered for specific requirements of a particular plant or industry. It may be in the form of squares, flat stock, rounds, billets, blanks, either solid or glued up; it may be shaped, completely machined, to the specification of the purchaser. In current practice, dimension is considered as stock less than eight feet in length and is usually cut to order."

HEAD ROOM—The vertical space necessary for the free passage of a human body standing erect. One of the important things in the laying out of a flight of stairs is the provision of sufficient head room between the treads and the construction above to permit passage without stooping.

HEADER—(a) One or more pieces of lumber used generally around openings, to support free ends of floor joists or to support the free ends of short joists, studs or rafters and transfer their load to other parallel joists, studs or rafters.
(b) A wood lintel. (c) In masonry, stones or bricks extending over the thickness of a wall, or the end of a brick showing on the face of a wall in horizontal position.

HEEL—The end or foot of a rafter that rests upon the wall plate.

HIT OR MISS—A series of spots which the planer or surfacer has skipped, or with skips the entire length of the piece when not over 1⅛ inch in depth.

IDAHO PINE — (Pinus monticola) — (From Forest Products Laboratory "Wood Handbook") "Western white pine, sold commercially as Idaho pine or Idaho white pine, grows principally in northern Idaho, eastern Washington and western Montana. Western white pine resembles Northern white pine so closely that the clear wood of the two is almost indistinguishable. Pattern makers state that Western white pine is somewhat more difficult to work, authough both are regarded highly for their workability. Western white pine is light in color, moderately light in weight, and straight grained. It swells and shrinks a little more with changes in moisture content, but on the whole compares favorably with Northern white pine and is used for the same purposes as Northern white pine."

JACK RAFTER—A rafter which reaches from the wall plate to a hip, or from a valley to a ridge.

JOINT—The space between the adjacent surfaces of two members of components joined and held together by nails, glue, cement, mortar or other means.

JOINTS, OPEN—A joint in which the two adjacent pieces of veneer do not fit tightly together.

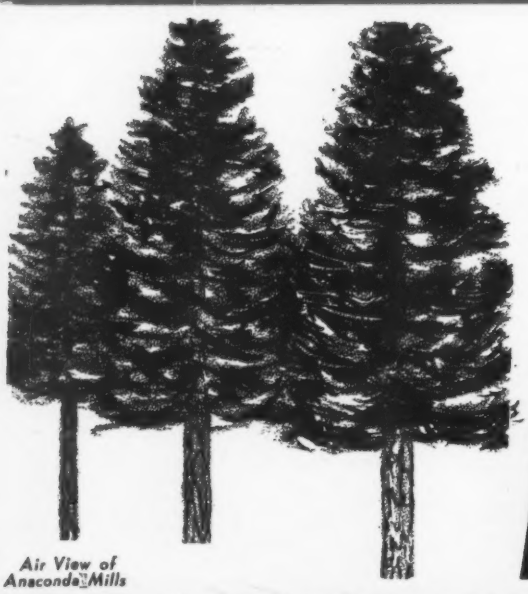
PRODUCED IN MISSISSIPPI

- Furniture dimension stock
- Cut-to-length Crating
- Parts for Prefab Homes
- Door and Window Frames
- Bed Rails
- Box Shook
- Pallets

Specialists in Kiln dried Southern Hardwood or Southern Pine cut-to-size stock, rough or worked to pattern. Also regular requirements in Yellow Pine and Hardwoods, within availability of stock.

Stewart-Farris and Myers Lumber Company

MORTON, MISSISSIPPI



Air View of Anaconda Mills

Anaconda

PONDEROSA PINE FIR AND LARCH LUMBER

Speeding up production to meet housing needs. But no sacrifice of lumber quality. That's today's program at the mills of Anaconda.

Choice cuttings from this mighty timberland of pine, fir and larch. Lumber painstakingly manufactured by experts, on up-to-date machines, in modern mills. This is the *preferred* lumber for building and industrial needs.

WESTERN PINE ASSOCIATION WPA

ANACONDA COPPER MINING CO.

LUMBER DEPARTMENT
BONNER, MONTANA

Lumber, Plywood & Related Items

3. Buildings, Framed, Joisted, or Heavy Timbered Mill Construction, Exterior Finished Carpentry and Millwork.

Use-Item	Grades Recommended	Thickness Commonly Used	
Ceiling (porch)	S01S Exterior Type	¼", ⅜"	( )
Exterior Wall Panels and Siding	S01S Exterior Type	⅜" & thicker	( )

4. Buildings, Fireproofed Construction, Rough and Exterior Carpentry.

Use-Item	Grades Recommended	Thickness Commonly Used	
Subflooring	(Plyscord) Sheathing	⅝"	( )
	(Plypanel) S02S	¾" & thicker	( )
Roof Decking, Flat Covered	(Plycord) Sheathing	½", ⅝"	( )

5. Buildings, Framed, Joisted, Heavy Timbered Mill, or Fireproofed Construction, Interior Finished Carpentry, Millwork and Cabinet Work.

Use-Item	Grades Recommended	Thickness Commonly Used	
Finished or Top Flooring Attics, Closets, Storerooms	(Plywall) WB or	½" (or 9/16" unsanded)	( )
	(Plyscord) Sheathing	½", ⅝"	( )
Covered Floors	(Plyscord) Sheathing	½", ⅝"	( )
	(Plywall) WB	½" (or 9/16" unsanded)	( )
Finish and Trim Attic Stair Treads or Stepping and Risers	(Plywall) WB	½"	( )
	(Plypanel) S02S	9/16" and thicker	( )
Wall or Ceiling Surfaces or Paneling	(Plywall) WB	¼", ⅜", ½"	( )
	(Plypanel) G1S	¼" & thicker	( )
Ceiling, Partition, and Closet Lining	(Plywall) WB	¼", ⅜", ½"	( )
	(Plypanel) G1S	¼" & thicker	( )
V-jointed or other milling If Both Sides Exposed	As Ordered		
	(Plypanel) S02S, G1S or G2S	¼" & thicker	( )
Ceiling Beams, Built Up	(Plywall) WB or (Plypanel) G1S	¼"	( )
Shelving, Light	(Plywall) WB or (Plypanel) S02S	⅜", ½"	( )
		⅜" & thicker	( )
Shelving, Store Counter Tops	(Plypanel) S02S	½" & thicker	( )
	(Plypanel) S02S or G1S	As desired	( )

6. Stadiums, Grandstands and Bleachers.

Use-Item	Grades Recommended	Thickness Commonly Used	
Roof Decking	(Plyscord) Sheathing	½", ⅝"	( )
Seats and Seat Backs (under roof)	(Plyform) Concrete Form Panels (specially cut to size).	As desired	( )
Wall Covering (Interior)	(Plywall) WB	¼", ⅜"	( )
Wall Covering (Exterior)	S01S (resin-bonded) Exterior Type	⅜" & thicker	( )

7. Towers and Derricks.

Use-Item	Grades Recommended
Gusset Plates	Special Mill Order

8. Billboards and Signs.

Use-Item	Grades Recommended	Thickness Commonly Used	
Panels	S01S (resin-bonded) Exterior Type or S02S (resin-bonded) Exterior Type	As desired	( )
		As desired	( )

JOIST—The horizontal planks or members to which the boards of a floor or oath of a ceiling are fastened, usually by nailing. They rest on the outer walls or on girders. Floor joist should always be doubled under partitions or if an opening is cut into the floor or ceiling construction so that the header cuts off two or more joists, the adjoining joist supporting the header should be doubled.

JOIST HANGERS (STIRRUPS)—When joists are to be laid flush with the girder, they are hung in joist hangers.

KERF—The channel made by a saw as it cuts through wood or other material. A board is often cut on one side with many shallow, parallel kerfs so that it may be bent to a certain form. In this operation the board is said to be "kerfed".

KNOT—In lumber, a branch or limb, embedded in the tree, which has been cut through in the process of lumber manufacturer. Knots are classified according to size, form, quality and occurrence. To determine the size of a knot, average maximum length and maximum width unless otherwise specified.

KNOTS, OPEN—Where a portion of the wood substance of the knot has dropped out or where cross checks have occurred to present an opening.

KNOTS, PIN—A knot less than ¼-inch in diameter which obviously shows a distinct central portion, as distinguished from swirls.

KNOTTY PINE—A type of finish that has become rather popular for dens, summer homes, lodges, etc. It is furnished in any of the soft textured pines by selection of the pieces containing many small round knots. It may be finished in any of the transparent effects, or with a gray pigment stain that tends to dim the bold effect of the knots but still permits them to show through. Some mills are selecting logs for this type of finish and then grading out the pieces having a required number of knots of average specified size.

LAMINATED WOOD—An assembly of wood, with the fibers or grain parallel in each piece, built up of piles or laminations and joined together either with glue or with mechanical fastenings. This is in contrast to plywood where grain of the various layers alternate crosswise, with grain on the two exposed faces parallel.

LAP—That part of each piece of beveled siding which extends over the piece immediately below. There is no fixed rule for its width for the reason that it depends entirely upon the spacing required to enable the carpenter to do a workmanlike job around wall openings.

LEDGER BOARD—A horizontal board fastened across the uprights of a scaffold parallel to the face of a building. A ribbon or ribbond, is sometimes called a ledger board.

LEDGER STRIP—A strip of lumber nailed along the bottom of the side of a girder on which joists rest. When joists are to be flush with the top of the girder, they must be notched sufficiently to fit over the ledger strip and still rest on a plane even with the topside of the girder.

LINEAL FEET — Measurement in a straight line; running feet. Contrasted with board feet, square feet or cubic feet.

LOBLOLLY PINE—(Pinus taeda)—This pine is known also by the name "Oldfield" because of its habit of spontaneous growth in old and abandoned fields that have once been cleared for agriculture. Its natural habitat is the swamps and lowlands along the coast from Delaware to Florida and around to Texas. Its best growth is eastern Virginia and eastern North Carolina. It grows to a height of 100 to 150 feet, often with a butt diameter of four or five feet. The wood is medium hard, strong, elastic and has a low percentage of shrinkage. It is not inclined to warp if properly seasoned, but does not work easily and splits in nailing. It resembles long leaf pine to such an extent that it is often sold as such and the two woods are often mixed and sold without discrimination. It does not, however, approach long leaf in the quality of strength, and where strength is a factor the inclusion of loblolly with longleaf is an imposition. For use as finish, flooring, light construction and other uses not requiring extreme strength it should be considered equal to any of the species included with the short leaf class.

LONGLEAF PINE—(Pinus palustris)—This pine is considered the best of all the woods that are classed as Southern Yellow Pine. It grows in a belt about one hundred thirty miles wide that extends along the coast from Virginia to the gulf and on around into Texas.

It favors the dry sandy soil of the foothills on the east of the Appalachians and the higher, drier regions just back of the coast all the way around to Texas. The finest trees and the greatest forests are doubtless found in the western part of its habitat, viz., Louisiana and Texas. It grows to a height of eighty to one hundred feet and has a butt diameter of from two to three feet. The wood

Lumber, Plywood & Related Items

9. Concrete Forms

Use-Item	Grades Recommended	Thickness Commonly Used	
Boarding and Panels (multiple re-use)	(Plyform) Concrete form panel	5/8", 3/4"	( )
Boarding and Panels (for use until panels wear out) (one use)	Concrete Form Grade Exterior Type (Plywall) WB S02S made with	5/8", 3/4" 1/4"	( ) ( )
Form Lining (reuse)	Concrete Form Glue	1/4"	( )

10. Sidewalk Protection.

Use-Item	Grades Recommended	Thickness Commonly Used	
One Use For Reuses	(Plyscord) Sheathing	5/8"	( )
	(Plyform) Concrete Form Panels	5/8", 3/4"	( )

11. Temporary Fronts

Grades Recommended	Thickness Commonly Used	
(Plyscord) Sheathing or	5/16", 3/8"	( )
(Plywall) WB or	1/4" & thicker	( )
(Plypanel) S02S	1/4" & thicker	( )

SALES ITEMS

Hardwood Plywood

Items Checked (x) Sell Subject to Securement
Items Checked (o) Do not Sell for the Present

		Birch	Gum	Oak	Walnut	Mahogany
1/8"	3 ply 1 side	( )	( )	( )	( )	( )
1/4"	3 ply 1 side	( )	( )	( )	( )	( )
1/4"	3 ply 2 sides	( )	( )	( )	( )	( )
1/2"	5 ply 1 side	( )	( )	( )	( )	( )
1/2"	5 ply 2 sides	( )	( )	( )	( )	( )
13/16"	5 ply 1 side	( )	( )	( )	( )	( )
13/16"	5 ply 2 sides	( )	( )	( )	( )	( )

Veneers

( ) Rotary Gum
( ) Rotary Select Red Gum
( ) Rotary Poplar
( ) Rotary Birch
( ) Rotary Basswood
( ) Rotary Cypress
( ) Rotary Chestnut
( ) Rotary 1/4 Sawn Oak
( ) Rotary White Oak
( ) Rotary Red Oak
( ) Rotary White Oak
( ) Rotary Mahogany

Items Asked For But Not Normally Stocked

Tips for Salesmen

1. Know the grades, types and markings of Douglas Fir.
2. Understand the uses for a particular grade.
   Example: Only exterior (identified by brand on edge, "EXT-DFPA") can be used for exterior siding or interior paneling below grade in basements, kitchen counter tops, boats, etc.
3. Keep in mind that the word "plywood" does not necessarily mean "fir plywood"— It likewise applies to **hardwood** plywood. Ask the customer what he wants the plywood for before offering him the material. Many sales of hardwood plywood can be made if this

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is heavy (for pine), very strong, very elastic and very hard. It shrinks very slightly if properly handled in seasoning and it stays in place well. It is not an easy wood for hand workers and is inclined to split in nailing. Longleaf is used in general construction where long, heavy, strong timbers are required, as in bridge building, etc. It makes good finish where properly prepared for that purpose. It is the longleaf that furnishes the most of the turpentine, pitch and rosin that is drained from the pine trees.

LOOKOUT—A lookout is either the extension of a rafter to provide space and support for a roof gutter, or a short piece of two by four which is nailed horizontally to the studding and extended to provide nailing surface for the planceer of a box cornice. Both constructions require the use of a box cornice of which the planceer is usually of matched stock such as ceiling or six inch flooring, although the use of a single board for the purpose is perfectly all right. Lookouts are frequently confused with false rafter, especially in the use of the name, but there is no connection. The lookout is placed horizontally while the false rafter always continues in the same pitch as the main rafter of which it is an extension.

LOOSE SIDE—See definition under "tight side".

LUMBER—Lumber is the product of the saw and planing mill not further manufactured than by sawing, resawing, and passing lengthwise through a standard planing mill, cross-cutting to length and working. Lumber of thickness not in excess of 1/4 inch to be used for veneering is classified as veneer.

LUMBER, BOARDS—Yard lumber less than 2 inches thick and 8 or more inches wide.

LUMBER, DIMENSION—See "dimension."

LUMBER, DRESSED SIZE—The dimensions of lumber after planing, usually 3/8" less than the nominal or rough size. For example a 2x4 stud actually measures 1 5/8 x 3 5/8".

LUMBER, FACTORY AND SHOP—Lumber intended to be cut up for use in further manufacture. It is graded on the basis of the percentage of the area which will produce a limited number of cuttings of a specified, or a given minimum, size and quality.

LUMBER, KILN-DRIED—Lumber dried by artificially controlled heat and humidity to a satisfactory moisture content much faster and better than can be done through the natural process commonly known as air drying or air seasoning. Kiln drying rate depends on thickness and grade of lumber; for example, a piece of 4/4 common is left in the kiln about 48 hours, but a piece of 8/4 select must remain in the kiln about three weeks.

LUMBER, MATCHED—Lumber that is edge dressed and shaped to make a close tongue-and-groove joint at the edges or ends when laid edge-to-edge or end-to-end.

LUMBER, NOMINAL SIZE—The ordinary commercial size by which it is known and sold in the market.

LUMBER, PLANK—A broad board, usually more than 1" thick, laid with its wide dimension horizontal and used as a bearing surface.

LUMBER, ROUGH—Lumber undressed as it comes from the saw.

LUMBER, SHIPLAP—Lumber that is edge dressed to make a close rabbetted or lapped joint.

LUMBER, STRIPS—Yard lumber less than 2" thick and less than 8" wide.

LUMBER, SURFACED—Lumber that is dressed by running it through a planer.

LUMBER, TIMBERS—Lumber 5 or more inches in least dimension.

LUMBER, YARD—Lumber of all sizes and patterns which is intended for general building purposes. The grading of yard lumber is based on the intended use of the particular grade and is applied to each piece with reference to its size and length when graded without consideration to further manufacture.

MATCHING, REVERSED—The matching of a veneer face by turning alternate adjacent sheets end for end.

MATCHING, BOOK—Turning alternate adjacent sheets over.

MATCHING, SLIDE—Laying adjacent sheets tight side up without turning.

MEMBERS—The different parts of a structure such as beams, rafters, cornice, base, etc.

MISMATCHES—Parts of the panel in which the grain character or figure of adjacent portions of veneer do not come together symmetrically.

MOCK RAFTER—A short piece of timber used in the construction of an open cornice to simulate a real rafter; usually sawed ornamentally. Also called rafter stubs or rafter ends.

MOISTURE CONTENT OF WOOD—Weight of the water contained in the wood usually expressed in percentage of the weight of the oven-dry wood.

MORTISE—A slot cut into a board, plant or timber, usually edgewise, to receive a tenon on another board, plant or timber to form a joint.

ON CENTER—In construction, a term used to indicate the points from which

precaution is observed, with larger unit sales and bet- the plywood for before offering him the material.
4. Be familiar with proper installation procedures.
5. Know the best methods for finishing plywood. In selling fir plywood, recommend the purchase of a suitable sealer which minimizes grain raise and checking.
6. Be familiar with the proper method of ordering plywood. It is commonly ordered as follows: 10 pieces, 3-ply, 48"x96"x¼" Wallboard grade, moisture-resistant.
7. Know how to store plywood. A closed building, with a minimum of light, is recommended since sunlight darkens panels. Use cover board to keep free of dirt. Pile flat.
8. Know the advantages of plywood
   Remarkable strength for weight
   Large sheets with economical installation costs
   Holds nails and screws close to edge
   Great dimensional stability
   Minimum warping if properly installed
   Good insulation values against sound and heat transmission
   Offers many decorative possibilities
   Low upkeep costs—seldom requires refinishing.
9. Warping—Plywood is made in a balanced construction to reduce warping to a minimum. Therefore it is important to remember that when finishing, this balance should be maintained by sealing the panel on both faces.
10. Building plywood—The Douglas Fir Plywood association, in their 1946 Architectural catalog, lists the physical properties of fir plywood, including the minimum radii to which it can be bent.
11. Shelving—When plywood is installed as shelving, the face grain should be at right angles to the supports.

HARDWOODS IN THE LUMBER YARD

The dealer who is overlooking the sales and profit opportunities in hardwoods is passing up an item that can contribute materially to public goodwill.

If not a lumber yard for hardwood, where else?

When the public wants and needs hardwood they cannot understand why the lumber dealer should not have it or get it for them.

Each dealer should analyze his market for its hardwood sales probabilities—in woodworking shops—in manual training—in factories—farms and industry.

Perhaps a mixed or pooled carload is indicated—or more probably a nearby wholesaler can be set up as a source of cooperation and supply.

The common hardwoods available direct from manufacturers or in wholesale yards include:

( ) Elm	( ) Pecan	( ) Hackberry
( ) Gum	( ) Willow	( ) Chestnut
( ) Oak	( ) Tupelo	( ) Mahogany
( ) Birch	( ) Maple	( ) Hackberry
( ) Beech	( ) Poplar	( ) Persimmon
( ) Cherry	( ) Ash	( ) Hickory
( ) Cottonwood	( ) Magnolia	( ) Sycamore
( ) Basswood	( ) Walnut	

Items Asked For But Not Normally Stocked

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certain measurements are made. For example—Joists are said to be laid 16 inches **on center** (CC), which means that they are to be placed 16 inches from the center of the edge of each joist to the center of the edge of the next one on each side.

OVER-ALL WIDTH—The total width of a piece of dressed and matched or shiplapped lumber including the width of the tongue or lap. The amount of such lumber required to cover a given area should not be computed on the basis of the over-all width since the tongue or lap is the means of joining the pieces and does not "cover" any surface.

PATCH—Insertion of sound wood glued into a panel from which defective portion has been removed.

PATTERN LUMBER—Lumber that is fine textured, straight grained, has small tendency to swell or shrink and is firm but soft and easy to cut. In other words, lumber that is suitable for making patterns for metal castings. Sugar pine and Northern white pine are two of the best pattern woods. African mahogany is good but expensive. Other woods are used but good pattern lumber is somewhat hard to find.

PECK—Found in cedar and cypress. Channeled or pitted areas or pockets of localized decay.

PILASTER—A part of a wall that projects not more than one-half of its own width beyond the outside or inside face of a wall, acting as an engaged pier.

PILE—A heavy timber, or pillar of metal or concrete, forced into the earth or cast in place to form a foundation member.

PITCH—An imperfectly defined accumulation of resin in the wood cells in a more or less irregular patch. See "Heavy pitch", "Light pitch", "Massed pitch", "Medium pitch", "Pitch pocket", "Pitch seam" and "Pitch streak".

PITCH POCKET—In lumber, a well defined opening between rings of annual growth, usually containing, or which has contained, more or less pitch, either solid or liquid. Bark also may be present in the pocket. See "Closed pitch pocket", "Large pitch pocket", "Medium pitch pocket", "Small pitch pocket", and "Very small pitch pocket".

PITCH STREAK—A well defined accumulation of pitch in a more or less regular streak. See "Large pitch streak," "Medium pitch streak" and "Small pitch streak."

PLAIN SAWED—See "Flat grain."

PLANCIER—The horizontal portion of a cornice extending from the frieze to the fascia under the lookouts or rafter ends. See Cornice.

PLANING MILL PRODUCTS—Lumber worked to pattern such as flooring, siding, ceiling, etc.

PLATE—A horizontal member laid on a wall or spiked to the top of studding, applied generally to practically all horizontal timbers which are laid on walls, studs, etc., to receive and support other timbers, especially the ends of joists or rafters. Usually a single plate, shoe or sole plate is used at the bottom of studding and a double plate on top. Also called false girt.

PLATE, OUTSIDE STUDDING—Usually the same size as studding. The lineal feet required will be three times the number of lineal feet in the perimeter of the building for single sole and double plate.

PLATE, PARTITION STUDDING—Should be the same dimension as the partition studding and the lineal feet required will be three times the number of lineal feet in the length of the partitions for sole plate and double top plate.

PLOW—The act of running a square bottomed groove in a piece of lumber in the same direction as the grain. The same term is applied to the groove itself. There does not seem to have ever been any clear distinction made between "rabbet" and "plough" but the characteristic differences noted in this book are approved by millwork authorities of long experience. "Groove" is a general term covering either rabbet or plough. The "flute" should have a round bottom. "Dado" is across the grain. "Rout" is something entirely different. See "Rabbet", "Rout", "Flute", and "Gain".

PLUMB — Same as "Perpendicular", "Vertical".

PLYWOOD—With referenuce to this important timber product the "Forest Products Laboratory" submits the following—"Plywood is used to describe a combination of several plies or pieces of veneer glued together, usually so that the grain of any one ply is at right angles with the other". It is the manufacture of plywood that permits the multiplication of beautiful wood figures to an extent that was impossible a few years ago. The natural beauty that is hidden in the heart of the log, can not only be exposed by means of veneer cutting and plywood mounting, but it can be cut into so many slices and mounted on inexpensive material. In the definition of plywood the word "usually" implies an exception and that exception occurs in the manufacture of

Lumber, Plywood & Related Items

Wood Preservatives

"A growing business" is a proper description of a Wood Preservative department in a retail lumber yard. The reason being that the steadily increased value of wood and its products makes its protection from outside forces that destroy it increasingly necessary.

Furthermore the use and sale of wood preservatives in lumber yards is as logical as bread and butter.

The enemies of wood include: termites, beetles, wood borers, bacteria, insects, worms, excessive moisture and fire!

Termites alone do 50 million dollars per year damage. The protection of wood can be an important volume item for the dealer.

All wood exposed to earth or moisture should be treated against the organisms which attack it—but especially the following items:

Post and Poles
All Lumber used in Basements
Sills, Girders, Joists
Floors and Flooring
Porch Work
Sash, Doors and Trim
Mine Props and Timbers
Ties, Cross Arms
Decking and Platforms
Structural and Bridge Timbers

Sales Items

Special chemicals and salts utilized for the following purposes are available to dealers for both yard use and merchandising purposes:

( ) Bacteria Controls
( ) Beetle Controls
( ) Decay Controls
( ) Dry Rot Controls
( ) Excessive Moisture Controls
( ) Fire
( ) Fungi Controls
( ) Moisture Repellents
( ) Mold Controls
( ) Sap Stain Controls
( ) Termite Controls

Many of these treatments also prevent swelling, warping, shrinking, checking and grain raising—this is called among preservative manufacturer's "dimensional control."

curved surfaces such as shaped seating, trunk tops, the rims for piano cases, some kinds of drawer and dresser fronts, etc., in which the different plies are laid with the grain of each parallel to the grain of the next one on either side and the whole combination shaped over a form.

The laying of adjacent veneers at right angles, however, gives a sheet construction, which, when used with an odd number of plies, three, five, seven, etc., is balanced, with an equalization of strains and stresses that provides an unusual strength and rigidity, with a tendency to resist warping, splitting and twisting.

PONDEROSA PINE—(Pinus Ponderosa)—Ponderosa pine grows in all of the region from British Columbia to Mexico in both the Rocky mountains and the coast ranges. Its area of growth constitutes one of the greatest timber resources of the world. The tree grows to heights often exceeding two hundred feet with a butt log diameter of from five to eight feet. The bark is yellowish red and lays in thick plates over an unusually thick sapwood that is nearly white in color. The heartwood is typical of all the pines in color and somewhat harder than the sapwood which is rather soft. Both heartwood and sapwood are straight grained and easy to work. It is ponderosa pine that constitutes a very large proportion of the lumber supply for sash and common doors, and for all common products of planing mill and general millwork plants. While not as durable in contact with moisture as the heartwood, the sapwood is popular in many lines of manufacture on account of its resemblance to northern white pine in appearance and in working qualities. In color and grain figure it resembles the hard pines somewhat more than the soft but in texture and general working qualities it is a close second to the softer woods. It shrinks and swells only slightly and takes to kiln drying very kindly.

PRESERVATIVE—Any substance that will, for a reasonable length of time, prevent the action of wood destroying fungi, borers of various kinds and similar destructive life when the wood has been properly coated or impregnated with it. About the only chemicals that have been tried out over long enough periods to justify definite conclusions about, are coal tar creosote and zinc chloride. Plants have been in use for some time impregnating wood with these chemicals under high pressure. There are two methods of impregnation in common use—the "Empty cell" process and the "Full cell" process. Briefly, the empty cell process consists of forcing the preservative into the wood under pressure sufficient to imprison the air in the cells during the continuance of the pressure. When the pressure is released, the air, which has been slightly compressed, expands and drives out all of the injected preservative that has not been absorbed by the fiber. In the "full cell" process a vacuum is produced to draw the air from the wood before admitting the preservative. The cells as well as the fiber are filled and impregnation is claimed to be more complete than in any other process.

PURLIN OR PERLING—A supported piece of timber placed under rafters to prevent them from sagging, between where they rest on the wall and ridgepiece or ridgepole.

QUARTERED—A method of producing veneer by slicing or sawing to bring out a certain figure produced by the medullary or pith rays which is especially conspicuous in oak. The log is flitched in several different ways to allow the cutting of the veneer in a radial direction.

QUARTER SAWN—From a purely mechanical point of view "Quarter sawn" lumber and "Edge grain" lumber are exactly the same, (see "Edge gain") but custom has decreed that the term "Quarter sawn" shall be applied to hardwoods and the terms "Edge grain", "Vertical grain", "Rift grain", etc., shall be applied to soft woods.

It is commercial practice to call hardwood lumber that has been sawn so that the annual rings stand at an angle of between 45 degrees and 90 degrees with the surface of the piece quarter sawn. If they are at an angle of less than 45 degrees with the surface of the piece, the lumber is plain sawn.

RABBET—A rectangular longitudinal groove cut in the corner of a board or other piece of material.

The original architectural word for this meaning was "rebate", but general use has established "rabbet" in the language and its appearance in the dictionaries justifies its continuance.

RADIUS HEAD JAMB—Head jamb for circle or segment top window or door.

RAFTER—One of a series of structural members of a roof designed to support roof loads. The rafters of a flat roof are sometimes called roof joists.

RAFTER, COMMON—One which reaches from wall plate to ridge.

RAFTER, DOUBLE JACK—One which reaches from a valley to a hip.

RAFTER ENDS—The ends of rafters which project beyond the wall of a building and support the overhang of the cornice. The rafters are some times cut extra length to extend beyond the eaves and the ends are scrolled for ornament. However, if the rafters are longer than "very short" the difficulty of manipulating them around the band saw in scrolling would make this method extremely impracticable. The better way is to cut them just long enough to provide a good seat upon the plate, or rafter support and provide false rafters which are set in to project beyond the eaves.

RAFTER, JACK—One which reaches from the wall plate to a hip or from a valley to a ridge.

RAFTER PLATE—In house building the rafter plate is the cap upon the top of the studding. It is the extreme top of the sidewall and makes the support of the lower ends of the rafters.

RAFTER SUPPORT—Same as "Rafter plate."

RAFTER, VALLEY—A rafter which forms the intersection of an intersection of an internal roof angle.

RAILING—See Banding.

RAISED GRAIN—A roughened condition of the surface of dressed lumber in which the hard summer wood is raised above the softer spring wood, but not torn loose from it. Caused by contact with moisture and while the condition will improve with a thorough drying out of the wood, it will seldom disappear entirely except by means of the use of light sand paper.

RAKE—A term used to describe any part of construction that is on an angle or out of line with the perpendicular or the horizontal. The rail of a stair or the pitch of a roof may be said to be on a "rake". Doors are sometimes made with a "rake head" to fit under the "rake" of a stair.

RANDOM LENGTH—Random (or mixed) lengths indicate that a specified footage of lumber includes a fair assortment of each length. Orders for random lengths often contain restrictions as to minimum lengths and possibly as to maximum lengths. Very often such orders may specify the percentage of certain lengths. The average length (computed by dividing the total length by the total number of pieces may also be specified. It can well be said, however, that an order for random lengths which is filled with restrictions can easily become an order of specified lengths and the purpose be entirely defeated.

RANDOM WIDTH—Random (or mixed) widths indicates a fair assortment of each width. Orders placed for random widths often contain a minimum specification as per agreement. The average width of a shipment of lumber one inch or less in thickness is computed by dividing the total board feet by the total length in feet and multiplying the result by twelve. The total board feet tally of lumber thicker than one inch shall be divided first by the thickness as expressed in inches and fractions of an inch.

RAYS (WOOD)—Strips of cells extending radially within a tree and varying in height from a few cells in some species to four inches or more in oak. The rays serve primarily to store food and transport it horizontally in the tree. These rays are the feature which, when intercepted longitudinally by the saw, produce the flakes of quarter sawn oak.

RIBBON STRIPE—This type of figure consists of alternating lighter and darker strips, running more or less the length of the sheet and varying from less than ¼ inch to more than 1½ inches in width. It is pronounced only in quartered or nearly quartered material. It usually is due to differences in the reflection of light from adjacent layers of wood cut from trees with interlocked grain.

RIDGE BOARD, ALSO RIDGEPOLE OR RIDGEPIECE—The highest horizontal member in a roof to which the upper ends of rafters are fastened. In the average house a piece of 1x6 roof board is usually used. The number of lineal feet required is the length of the roof.

RIPPLING SIZE—The width of stock necessary to produce any given finished size, usually ¼ inch over finished size.

RISE—Rise is the vertical distance covered by an incline in ascending from one level to another. Example—the rise of a roof or a stair. In a stair the rise is the vertical distance between floors although it is usually spoken of as the vertical distance (in inches) between the top surface of one tread and the top surface of the next.

RISER—Any piece of lumber placed vertically under another to elevate it and support it. The term is usually applied to finish. In a stair the piece which is placed vertically to close the space between the rear of one tread and the front of the next tread above In a built-in seat the supporting front below the seat itself is called a riser In this case it is often paneled.

ROOF BOARDS—The kind of roof boards to be used depends on the kind of shingles to be applied. For wood shingles the roof boards are usually 1x4 or 1x6 spaced 2 inches apart to allow for the circulation of air to prevent the rolling of shingles. To find the amount of roof boards required, determine the area of the roof and deduct 1/5. If asphalt, asbestos or slate shingles are applied, the roof boards should be 1x6 board laid solid or "tight." Add 5% to the roof area to determine the amount of boards required.

ROOF SHEATHING—The boards nailed to the roof rafters on which the shingle or other roof covering is laid. See "Roof Boards".

ROOF STRIPS—See "Roof boards".

ROOF TIES—Collar Beams. Member, boards or planks, fastened to rafters above the plate line, set at regular intervals (usually on 4-foot-0-inch centers) to prevent walls and roof from spreading.

ROPE FIGURE—A succession of short cross fire remotely suggesting the twist of a rope.

ROT—See "Decay".

ROTARY CUT—The veneer, cut in a continuous sheet from the circumference of the block, somewhat as paper is unwound from a roll.

ROTARY CUT VENEER—See "Veneer".

ROUGH CARRIER—The rough plank sawed to receive the treads and risers of a stair. Same as "Rough horses" and "Stair jacks".

ROUGH SILL—The short plate or header that forms the base of a rough opening for a window in a frame wall.

SAP—An abbreviated term for "sapwood" the lighter-colored wood substance occurring in the outer portion of the tree.

SAP WOOD—The outer layers of growth in a tree, exclusive of bark, which contains living elements, usually lighter in color than heartwood. Under most conditions sapwood is more susceptible to decay than heartwood but is not essentially weaker or stronger than heartwood of the same species. See "Spring wood", "Summer wood", "Wood growth".

SASH WOOD—See ("Sash stock".).

SAWED VENEER—See "Veneer".

SCAFFOLDING OR STAGING — A temporary erection of timber and planks as a platform to be used by men in construction work. See "Scaffold bracket".

SCALE—A system by which units of measurement are designated by other units in a fixed proportion. For illustration—The floor plan of any house could scarcely be drawn in full size representation so the scale of ¼ inch to one foot is commonly used. If the building is a large one the scale of ⅛ inch to one foot is not at all unusual. Details of moulding and other small items may be drawn full size while details of large items such as doors, windows, cupboards, mantels, stair newels, etc., may be drawn ½ inch to one foot, ¾ inch to one foot, one inch to one foot, 1½ inches to one foot or three inches to one foot. For convenience architectural draftsmen use a scale rule on which several of the above scales are represented with one of the units of each being divided into inches. When a new drawing is made using a different scale it is called "correcting the scale."

SCANTLING—A term generally applied to any piece of timber under five inches square.

SCARF JOINT—An end to end joint of two pieces of lumber made by cutting the pieces at the ends in reverse notches or shapes so that they will lap and fit together without increasing the size of the piece. Pieces are held together by bolts, nails, screws or glue.

SEASON CHECK—A crack in the wood construction of a piece of lumber due to the too rapid drying (seasoning) of the piece.

SEASONING—Removing moisture from a piece of green wood in order to improve its serviceability.

SEAT OF RAFTER—The horizontal cut upon the lower end of a rafter which rests upon the top of the plate.

SHAKE—A lengthwise separation of the wood which occurs usually between and parallel to the rings of annual growth. Five different kinds are noted. "Fine shake", "Medium shake", "Open shake", "Round shake", "Slight shake" and "Through shake".

SHEATHING—The first layer of exterior wall covering, nailed to the studding. Roof boards are also sometimes referred to as sheathing. Sheathing may be square-edged, ship-lapped or tongue and groove boards, nominally one inch thick and from 6 to 12 inches wide. Plywood is also used as sheathing. Wood board sheathing is usually 1x8 or 1x10 shiplap. It may be applied horizontally although diagonally applied sheathing is stronger. Eight-inch boards should have two nails in each board at each stud and ten-inch boards should have three nails at each stud. 8d common nails are usually used.

SHIM—A word conveying almost the same meaning in wood construction that it does in mechanics. The shim fills space that would otherwise be eliminated by pressure with results that would be undesirable. Its use in wood working cannot be considered good workmanship and should never be necessary in new construction. It is often convenient in repair work to make amends for the shrinkage of pieces that cannot be removed and replaced and to recover vertical space lost by settling.

SHIPLAP—Lumber with rabbeted edges that is ¾ inch thick by 7½, 9½ or 11½ inches in width, these widths being called eight, ten and twelve inch respectively. It has both edges rabbeted, one in reverse of the other, for matching. The rabbet is one-half the thickness of the piece and ⅜ inch wide. The dimensions given above are standard but six inch shiplap and extra thick shiplap are often manu-

(Continued on Page 60)

STANDARD DETAILS FOR HOUSE FRAMING

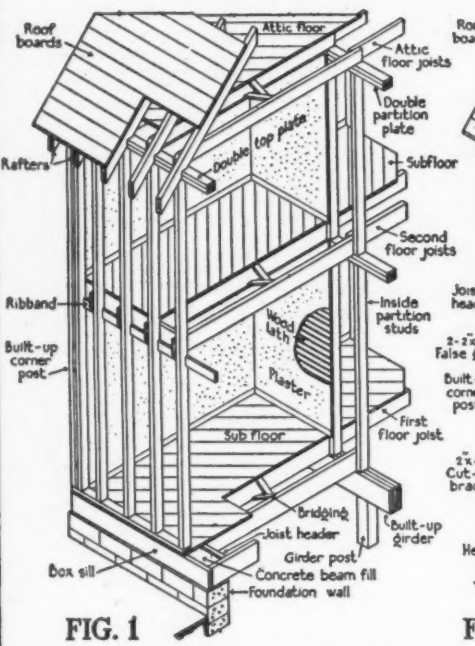


FIG. 1

THE BALLOON FRAME

This type of frame has many things to recommend it. The one piece studs, extending the full height of the wall and tied together by the ribband at the second floor line reduce to a minimum the shrinkage factor. It is strong and rigid but requires careful fire stopping.

This frame is more efficient when the interior studding is set directly on top of girders or bearing partitions.

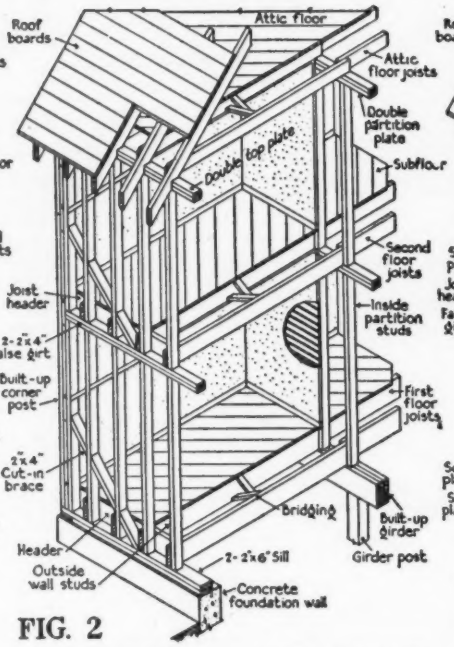


FIG. 2

THE MODERN BRACED FRAME

This type of frame is an outgrowth of New England solid timber post and girth construction. Built-up members are used today very largely and with equal satisfaction. Instead of heavy posts set eight or ten feet apart, walls are built with 2x4 in. studs set 16 in. on centers. The second floor is carried on a double 2x4 in girt. Diagonal bracing is inserted at the corners. This type has several commendable features. It is simple to build and has good provision for fire stopping both at sill and second floor line. 2x4 in. cut-in bracing, as illustrated, may also be used with other types.

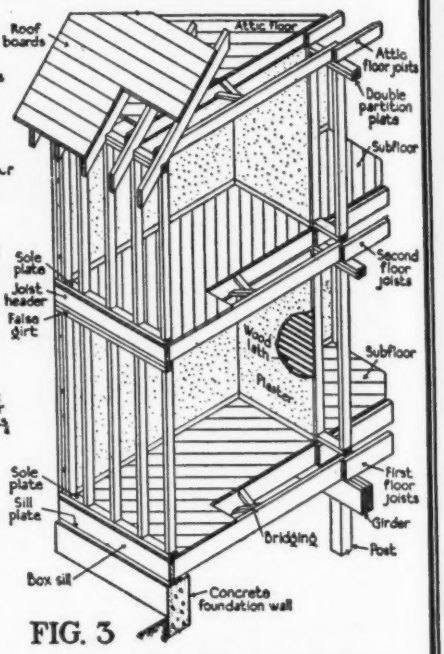


FIG. 3

THE PLATFORM FRAME

The Platform Frame is extensively used. It is similar in principle to Braced Frame but has boxed sill construction at each floor line. This makes for greater shrinkage but it is equalized on each floor when a similar type of construction is used under bearing partitions.

This frame is more efficient when the interior studding is set directly on top of girders or bearing partitions.

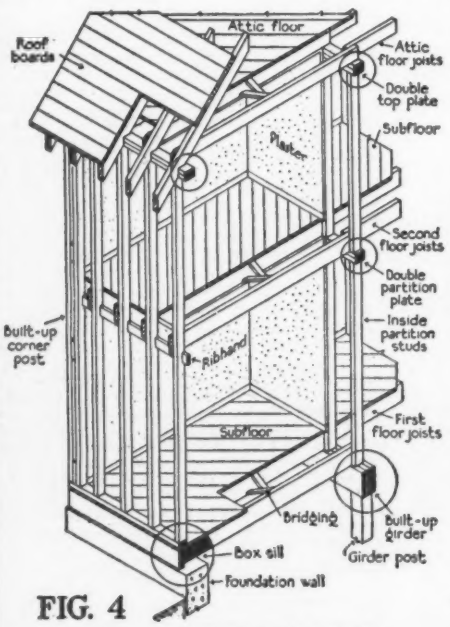


FIG. 4

DETAIL OF METHOD FOR SECURING BALANCED SHRINKAGE

THE FRAME provides the network to which the other materials are fastened and the strength and rigidity required to support the loads put upon it and preserve the materials with which it is built. Three distinct types of frames are shown by Figs. 1, 2 and 3. Numerous combinations of these types are frequently employed.

BALANCED SHRINKAGE

The total thickness of horizontal lumber in the framing of outside and inside walls on each floor should be equalized as nearly as possible to eliminate uneven shrinkage.

FIRE STOPPING

Fire safety in a dwelling is increased by preventing the circulation of air in the walls between floors or between rooms. An effective method is shown in the drawing to the right. (Fig. 5)

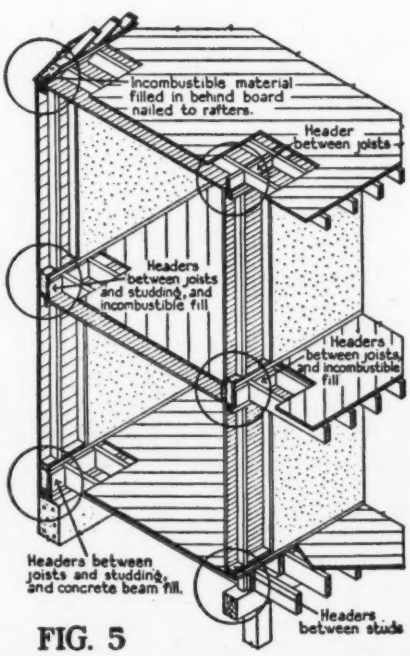

Incombustible material filled in behind board nailed to rafters.
Header between joists
Headers between joists and studding, and incombustible fill
Headers between joists and incombustible fill
Headers between joists and studding, and concrete beam fill.
Headers between studs

FIG. 5

FRAMING FOR FIRE STOPPING

STANDARD DETAILS FOR HOUSE FRAMING

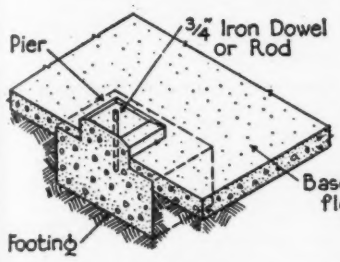


FIG. 6 FOOTING FOR COLUMN

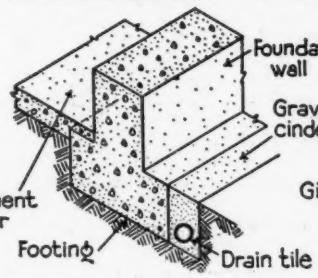


FIG. 7 FOOTING FOR FOUNDATION WALL

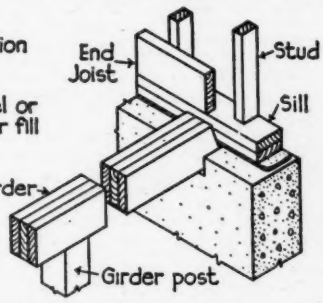
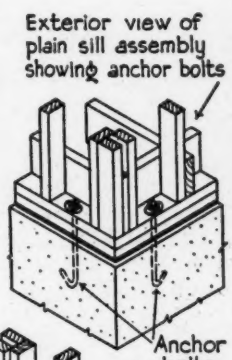


FIG. 8 BUILT-UP GIRDER—END SET IN CONCRETE WALL



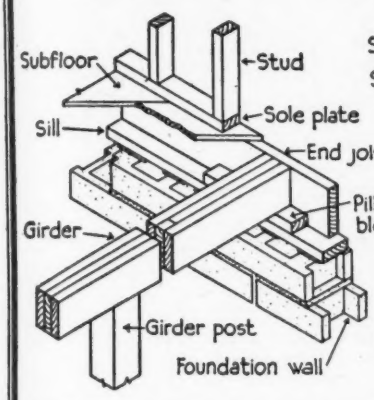


FIG. 9 BUILT-UP GIRDER END SET ON SILL PLATE

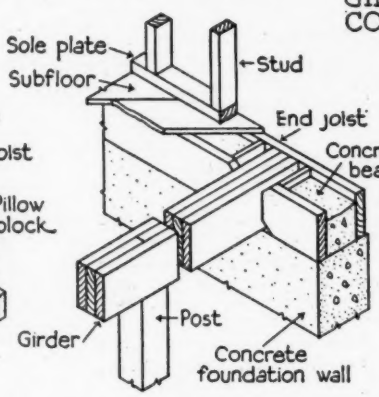


FIG. 10 BUILT-UP GIRDER END SET ON CONCRETE WALL

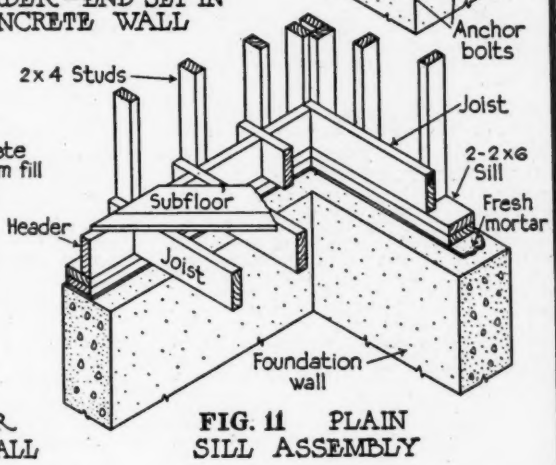


FIG. 11 PLAIN SILL ASSEMBLY

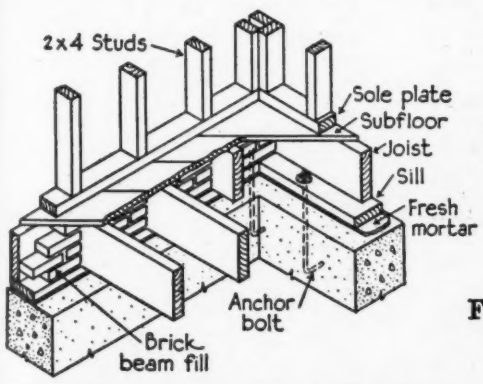


FIG. 12 BOX SILL ASSEMBLY WITH SILL PLATE

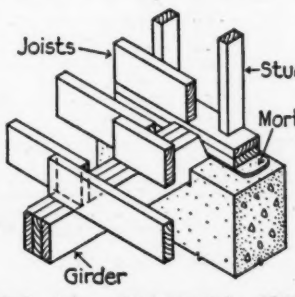


FIG. 14 FRAMING JOIST ON TOP OF GIRDER

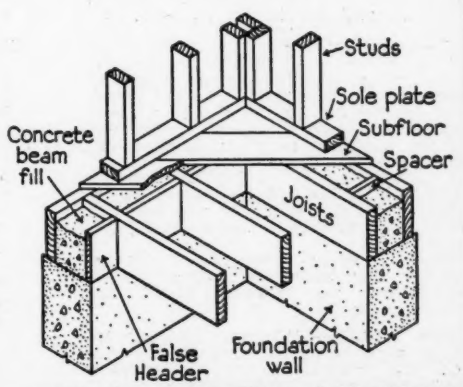


FIG. 13 BOX SILL ASSEMBLY WITHOUT SILL PLATE

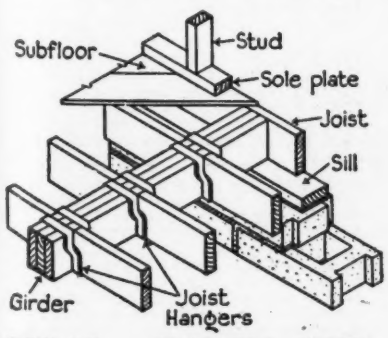


FIG. 15 FRAMING JOIST LEVEL WITH TOP OF GIRDER

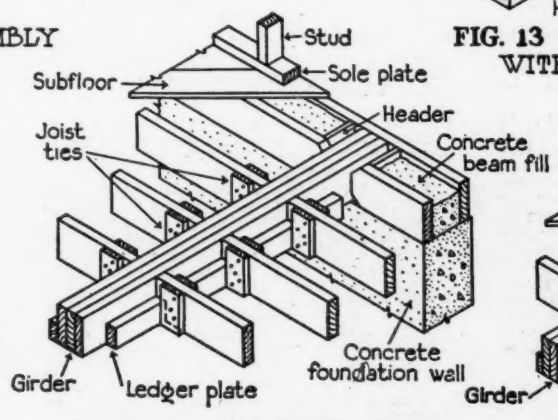


FIG. 16 FRAMING JOIST NOTCHED OVER LEDGER STRIP

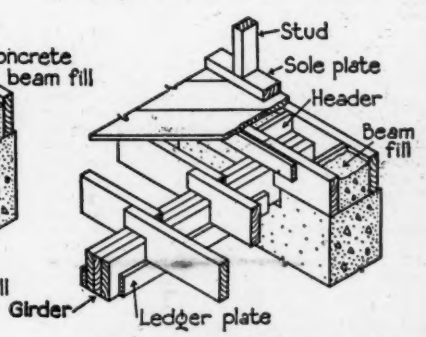


FIG 17 FRAMING JOIST NOTCHED OVER GIRDER

STANDARD DETAILS FOR HOUSE FRAMING

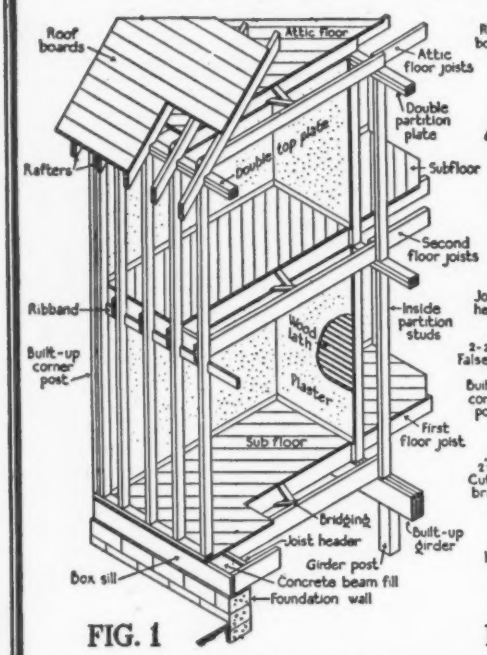


FIG. 1

THE BALLOON FRAME

This type of frame has many things to recommend it. The one piece studs, extending the full height of the wall and tied together by the ribband at the second floor line reduce to a minimum the shrinkage factor. It is strong and rigid but requires careful fire stopping.

This frame is more efficient when the interior studding is set directly on top of girders or bearing partitions.

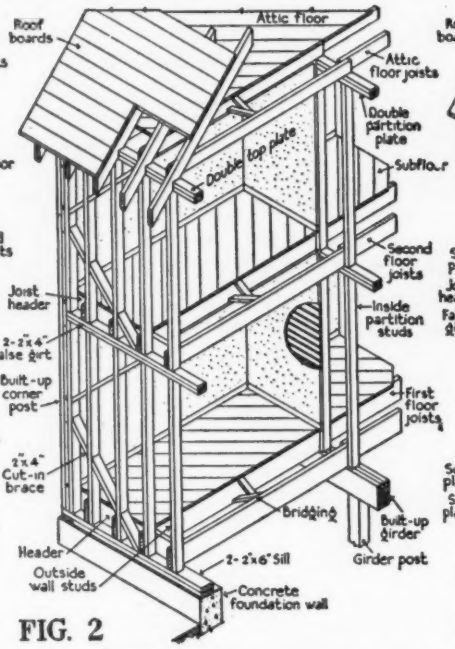


FIG. 2

THE MODERN BRACED FRAME

This type of frame is an outgrowth of New England solid timber post and girth construction. Built-up members are used today very largely and with equal satisfaction. Instead of heavy posts set eight or ten feet apart, walls are built with 2x4 in. studs set 16 in. on centers. The second floor is carried on a double 2x4 in girt. Diagonal bracing is inserted at the corners. This type has several commendable features. It is simple to build and has good provision for fire stopping both at sill and second floor line. 2x4 in. cut-in bracing, as illustrated, may also be used with other types.

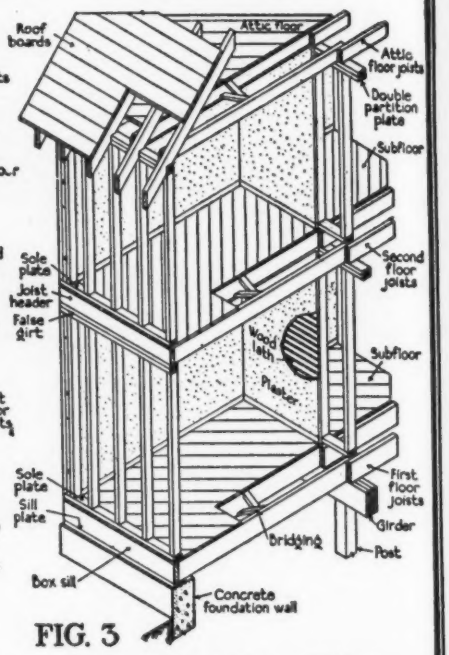


FIG. 3

THE PLATFORM FRAME

The Platform Frame is extensively used. It is similar in principle to Braced Frame but has boxed sill construction at each floor line. This makes for greater shrinkage but it is equalized on each floor when a similar type of construction is used under bearing partitions.

This frame is more efficient when the interior studding is set directly on top of girders or bearing partitions.

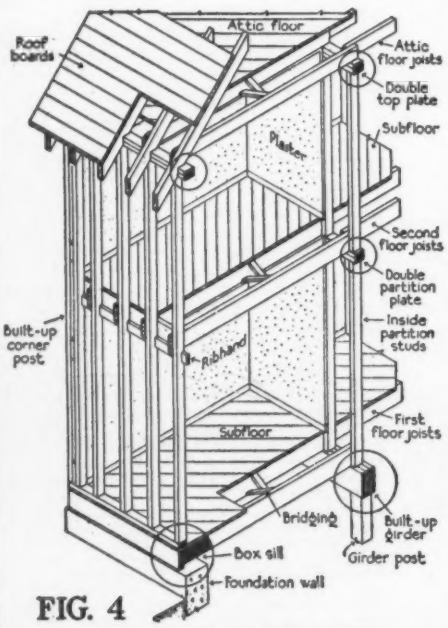


FIG. 4

DETAIL OF METHOD FOR SECURING BALANCED SHRINKAGE

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THE FRAME provides the network to which the other materials are fastened and the strength and rigidity required to support the loads put upon it and preserve the materials with which it is built. Three distinct types of frames are shown by Figs. 1, 2 and 3. Numerous combinations of these types are frequently employed.

BALANCED SHRINKAGE

The total thickness of horizontal lumber in the framing of outside and inside walls on each floor should be equalized as nearly as possible to eliminate uneven shrinkage.

FIRE STOPPING

Fire safety in a dwelling is increased by preventing the circulation of air in the walls between floors or between rooms. An effective method is shown in the drawing to the right. (Fig. 5)

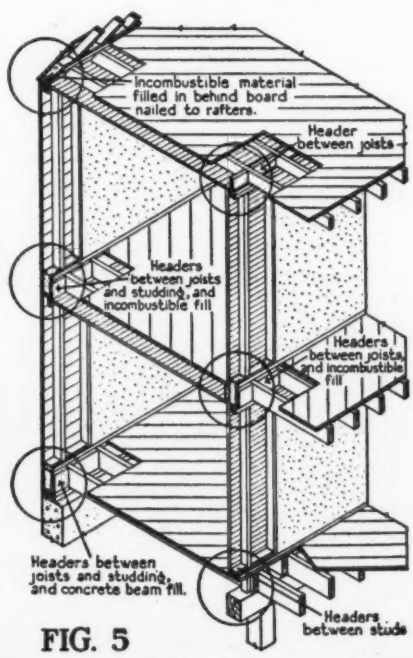

Incombustible material filled in behind board nailed to rafters.
Header between joists
Headers between joists and studding, and incombustible fill
Headers between joists and incombustible fill
Headers between joists and studding, and concrete beam fill.
Headers between studs

FIG. 5

FRAMING FOR FIRE STOPPING

STANDARD DETAILS FOR HOUSE FRAMING

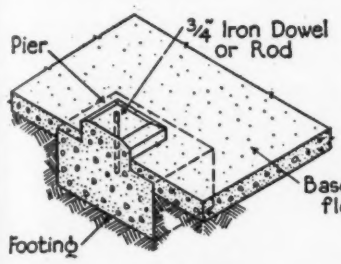


FIG. 6 FOOTING FOR COLUMN

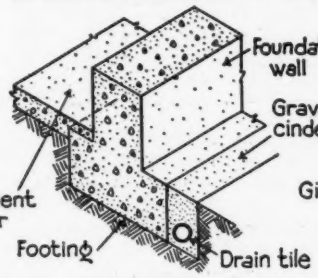


FIG. 7 FOOTING FOR FOUNDATION WALL

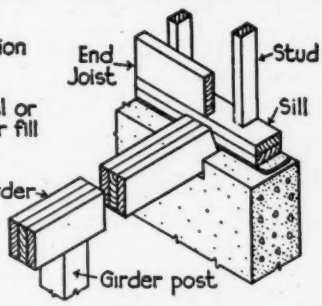
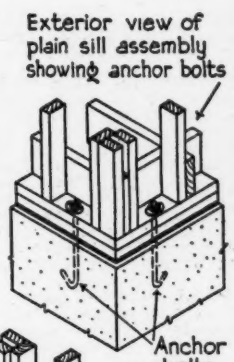


FIG. 8 BUILT-UP GIRDER—END SET IN CONCRETE WALL



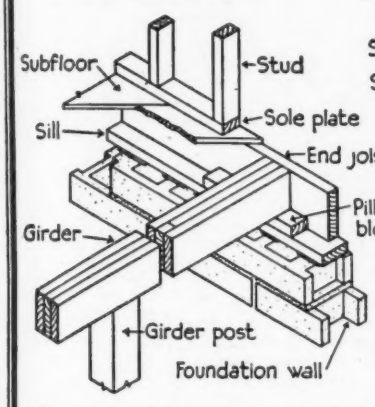


FIG. 9 BUILT-UP GIRDER END SET ON SILL PLATE

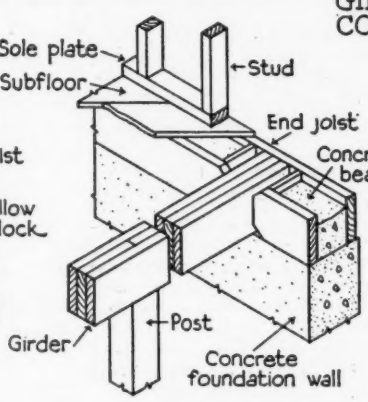


FIG. 10 BUILT-UP GIRDER END SET ON CONCRETE WALL

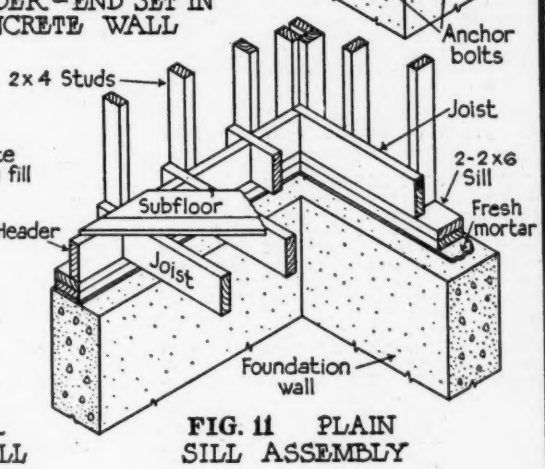


FIG. 11 PLAIN SILL ASSEMBLY

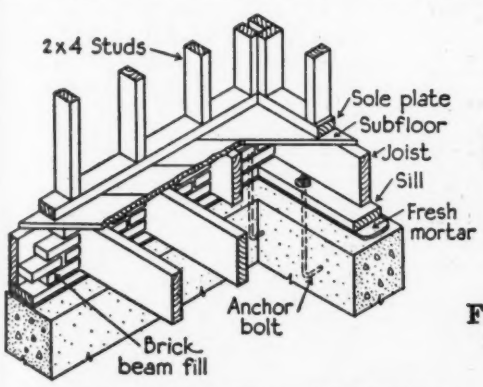


FIG. 12 BOX SILL ASSEMBLY WITH SILL PLATE

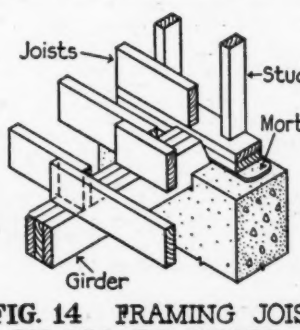


FIG. 14 FRAMING JOIST ON TOP OF GIRDER

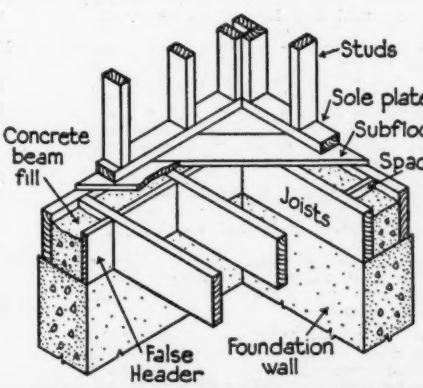


FIG. 13 BOX SILL ASSEMBLY WITHOUT SILL PLATE

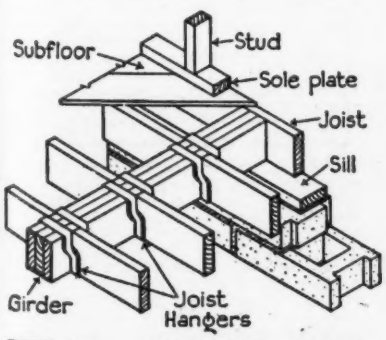


FIG. 15 FRAMING JOIST LEVEL WITH TOP OF GIRDER

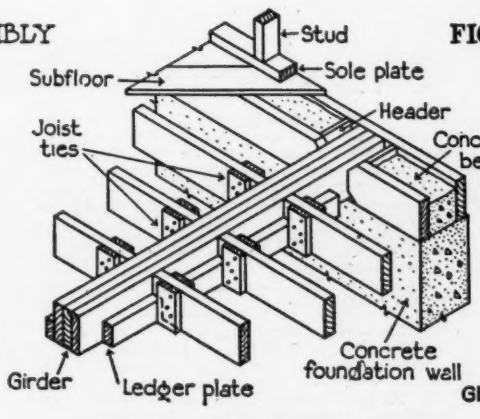


FIG. 16 FRAMING JOIST NOTCHED OVER LEDGER STRIP

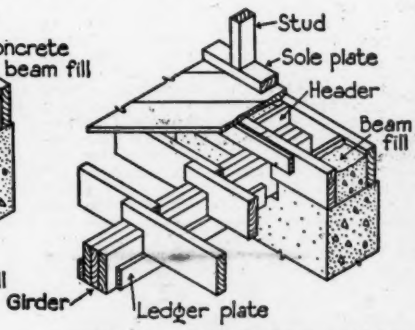


FIG 17 FRAMING JOIST NOTCHED OVER GIRDER

factured on special order for the requirements of certain localities. Shiplap is used for sheathing, roof boards, sub floors, many other things and is an important item in every lumber yard inventory. For coverage add one eighth for the eight inch, one tenth for the ten inch, and one twelfth for the twelve inch.

SHIPPING DRY—The trade term "shipping dry", although widely used, has no specific or agreed meaning with respect to quantity of moisture. The wide limitation of the term as ordinarily used is covered by the following statement, which, however, is not to be construed as an exact definition: "Shipping dry" lumber is lumber that is partially air-dried to reduce freight charges and may have a moisture content of 30 percent or more.

SHOP LUMBER—Lumber intended to be cut up for use in further manufacture. It is graded on the basis of the percentage of the area which will produce a limited number of cuttings of a specified or given minimum size or quality.

SHORING — Supports applied to strengthen or prop a wall or structure.

SHORT LEAF PINE—(Pinus echinata)—This wood is second only to the long leaf in commercial value, and while standing in the forest is the equal of any of the pines of the south and east. It grows in the same region as the long leaf, except that it extends a bit further to the west and north. From Pennsylvania throughout the coastal region around to Texas, and north in a wide strip of the Mississippi valley, it ranges in great forests. The tree grows to a height of from eighty to one hundred feet and with a butt log diameter of from two to four feet. It is used extensively for house finish and trim, for flooring, ceiling, siding and boards, as well as for lumber yard dimension and for heavy timbers.

SILL—The lowest member of the frame of a structure, usually horizontal, resting on the foundation and supporting the uprights of the frame. See details for House framing. Also the member forming the lower side of an opening, such as a door sill, window sill, etc.

SINGLE KNOT—A knot occurring by itself with the fibers of the wood in which it occurs deflected around it.

SKIP—Skip is an area on a piece of lumber that failed to surface. It is designated as "Slight skip" and "Heavy skip."

SLASH PINE—(Pinus caribaca)—Slash pine is also called Cuban pine and the "caribaca" of the botanical name refers to the Caribbean Sea.

The growth of the Slash pine is limited to a somewhat smaller area than either the long-leaf or the short-leaf species, but this species is not nearly as particular as either of the others about keeping its feet dry. It extends from South Carolina along the coastal plains around to the mouth of the Mississippi and shows its greatest vigor in the western part of that section. Since its territory is less than either the long-leaf or the short-leaf its production is proportionately less, but inasmuch as its territory of growth is very nearly all included in that of those two trees it is lumbered without discrimination and is seldom, if ever, marketed under its own name. Both the tree and the wood bear close resemblance to the long-leaf pine and none but an expert of long experience would be able to notice the difference. The tree grows to a height of eighty to one hundred feet with a butt log diameter of two to three feet. The wood is heavy, hard, very strong and very elastic. Its percentage of shrinkage is low and it stays in place very well. It is not easy to work and splits badly in nailing. In strength this pine will run a point or two better than long-leaf, so its use for any kind of timber and beam construction is more desirable than any other American wood. It is freely used for house finish, for lumber yard dimensions, and for flooring, siding, ceiling and boards. It has the color characteristics of southern pine and takes a good polish.

SLEEPER—A piece of timber laid on the ground or a strip bedded in concrete to which flooring may be secured.

SLICE—The process of searing or cutting a veneer.

SMALL PITCH POCKET—A pitch pocket not more than ⅛ inch in width and not more than four inches in length, or not more than ¼ inch in width and not more than two inches in length.

SOFFIT—The exposed underside of any piece of construction. The ceiling of a room is the soffit of the floor above. When a stair is open underneath, the exposed underside is the soffit of the stair. The underside of a cornice is the soffit.

SOFTWOOD—The group of trees which have needle-like or scale-like leaves, often referred to as conifers. The term softwood has no reference to the softness of the wood.

SOLE OR SOLE PLATE—A horizontal member, usually a 2x4, on which wall and partition studs rest. Opposite the Plate or Top Plate.

SPAN—The distance between the supports of a rafter beam, girder, arch, truss, etc.

SPECIFIED WIDTH—Any list of lumber items in which all widths are specified.

SPLITS—Separations of wood fiber running parallel with the grain.

SPRING SET—A saw is said to be spring set when one tooth is sprung to the right and the next one to the left. Cross cut saws and very narrow band saws are spring set.

SPRING WOOD—The portion of the annual growth ring of a tree which is formed during the early part of the season's growth. It is usually less dense and weaker mechanically than Summer wood. See "Summer wood".

SQUARE SIDING—See "Parallel siding".

STACK PARTITION—A partition which carries the stack or soil pipe, sometimes constructed with 2x6 or 2x8 studs, and continuous from first floor to attic floor lines.

STAGING—A structure of posts and boards for supporting workmen and material during construction. Same as "Scaffold".

STAIR JACKS—The rough lumber carriers which form the support of the treads and risers of a flight of stairs. The rise and the run is cut into them for every step. Should be made from sound two inch plank wide enough to still provide ample strength after the cutting of the steps. There are always two and sometimes three jacks to every run. Also called rough horses, rough carriers, stair horses and step horses.

STAIN—Any discoloration of the wood substance. Common veneer stains are often produced by the chemical action of the iron in the cutting knife with the tannic acid in the wood and by the chemical action of glue.

STREAKS, MINERAL — Natural discolorations of the wood substance.

STRIPE, BROKEN—See Broken stripe.

STRIPE, RIBBON—See Ribbon stripe.

STRUT—A general term which refers to any sort of post or beam that keeps any two sections of a structure from approaching each other closer than the length of the strut. A column is a strut bearing a vertical load and presenting a finished appearance. Struts of great importance are those used in the shoring of trenches to hold the shoring planks apart and keep the walls from coming together and engulfing the workmen. The words "stay" and "brace" are used almost synonymously and "tie" in an exact antonym.

STUD—Studding are the vertical members of either partitions or outside walls in a frame construction building. Their purpose is to support the weight of the upper floors and to provide a framework for sheathing and finish on the outside and whatever lining material is used on the inside. Since lath are either 32 inches or 48 inches in length and all recent preparations of insulation lath are made in sizes that are multiples of 16, the spacing of studding should be 16 inches on centers.

SUMMER WOOD—Summer wood is the dark colored portion of the yearly growth ring and is put on during the latter part of each growing season. Its fibers are thicker walled than those of the lighter colored spring wood. Its density is nearly twice that of spring wood. The more summer wood present the greater the density and the stronger the piece.

SWIRLS—(a) The small spots developed by irregular grain adjacent to a pin knot, usually where the black center of the pin knot itself does not show, is also described as a swirl or cat eye. These usually are but a fraction of an inch in diameter. (b) Irregular grain, usually surrounding knots or crotches. Small sheets with swirl figure are produced for overlays and small matched panels.

TIGHT SIDE—This term and its opposite, "loose side" are used to refer to veneer cut with a knife. The Product as it is cut by the wedge-shaped or beveled knife may be curved, this producing small ruptures on the convex side known as the "loose side." The opposite surface, strained slightly in compression, but free from any ruptures is known as the "tight side."

TONGUE AND GROOVE—A joint for holding together and in alignment the edges of various kinds of lumber. The tongue may be of most any width and thickness, varying from ⅛ inch in thickness by ⅛ inch in width, as in some types of ceiling; to ¾ inch in thickness by ⅜ inch in width, as in extra heavy flooring. The groove is always slightly deeper than the width of the tongue but ⅛ inch seems to be about the limit of excess. The thickness of the tongue is always slightly less than the space allowed for it in the groove and that difference is from 1/32 inch in thin ceiling to ⅛ inch in heavy flooring. The position of the tongue and groove on the edge of the piece varies greatly in the different types of lumber in which it is used. In "center matched" it is exactly in the middle of the edge. In standard matched flooring it is nearer the bottom than the top, ostensibly to permit the flooring to wear nearly half through before exposing the tongue. In the various types of ceiling it has great variance from within 1/32 inch of the plain face to within ¼ inch of the beaded face. In figuring quantities the amount to be added for coverage should always take the tongue and groove matching into consideration.

TRUSS—A truss is a compound triangular arrangement of framing material to form a rigid support of weight for a span that is too great to be safe is single beams were used. The principles of load distribution by means of the complex arrangement of beams, struts and braces involves mathematical calculations that are unnecessary in ordinary home or small building construction and too scientific for a work of this kind. The principles of the truss are often used in small house framing by carpenters who have little scientific knowledge of them but the margin of safety is almost always sufficient to insure the construction against failure.

STANDARD DETAILS FOR HOUSE FRAMING

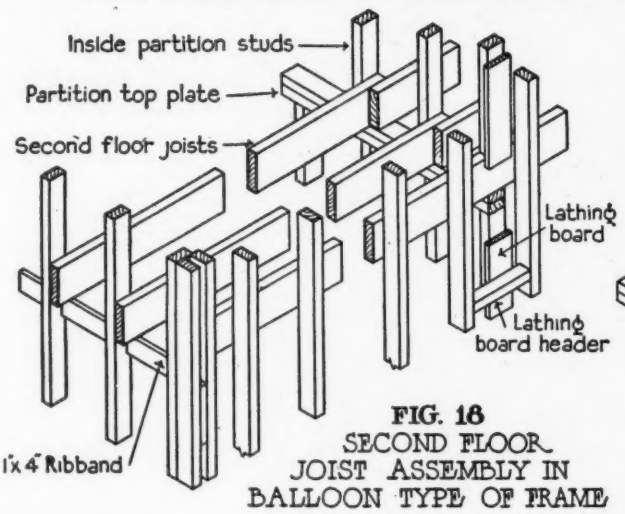


FIG. 18
SECOND FLOOR JOIST ASSEMBLY IN BALLOON TYPE OF FRAME

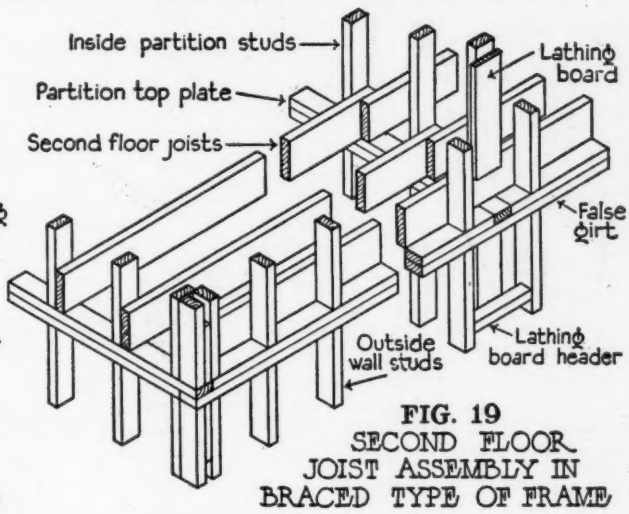


FIG. 19
SECOND FLOOR JOIST ASSEMBLY IN BRACED TYPE OF FRAME

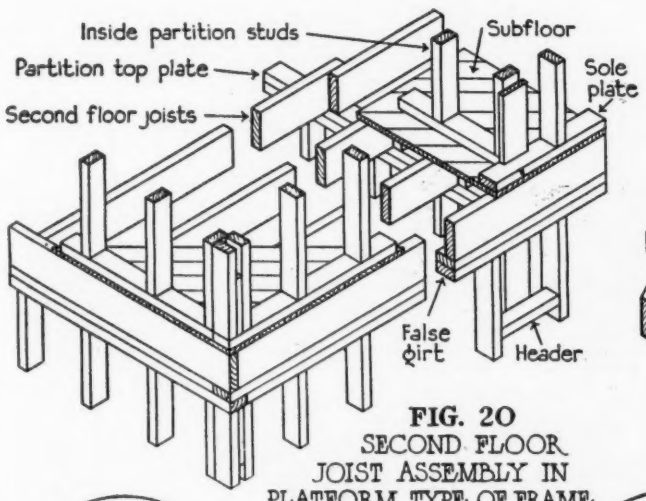


FIG. 20
SECOND FLOOR JOIST ASSEMBLY IN PLATFORM TYPE OF FRAME

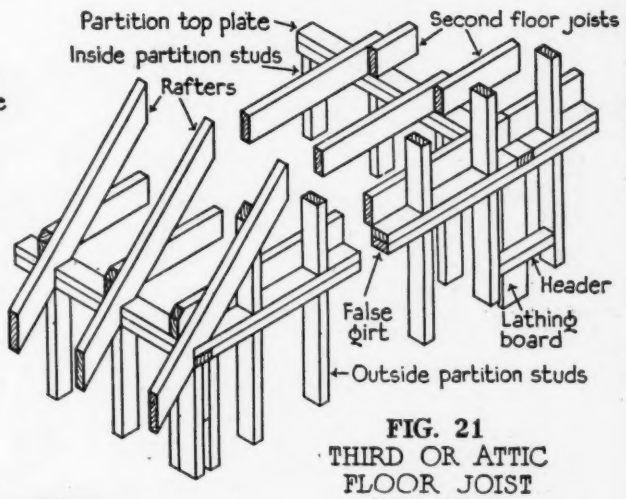


FIG. 21
THIRD OR ATTIC FLOOR JOIST ASSEMBLY

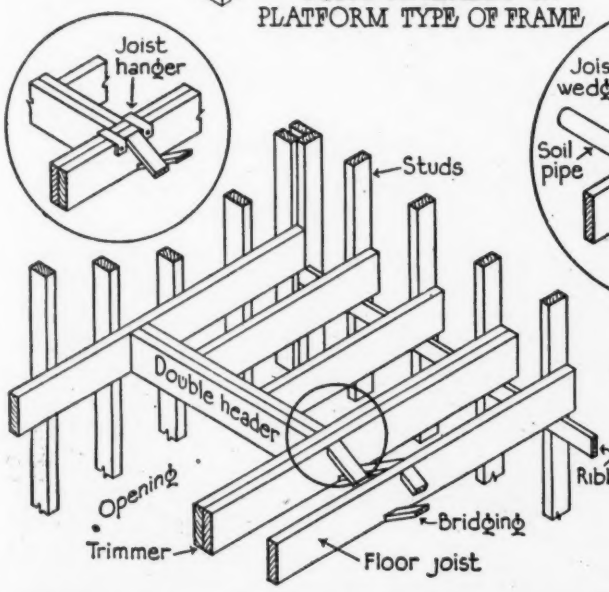


FIG. 22 FRAMING AROUND FLOOR OPENING

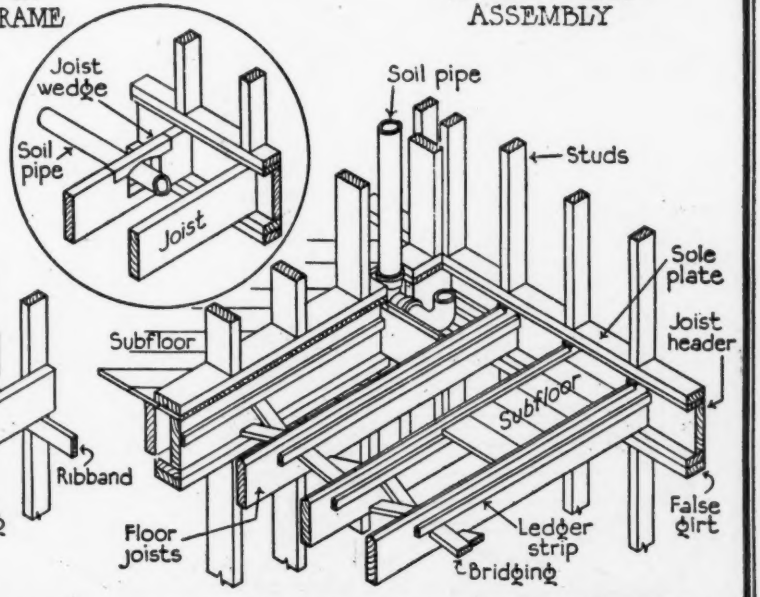


FIG. 23 FRAMING JOIST UNDER BATHROOM

STANDARD DETAILS FOR HOUSE FRAMING

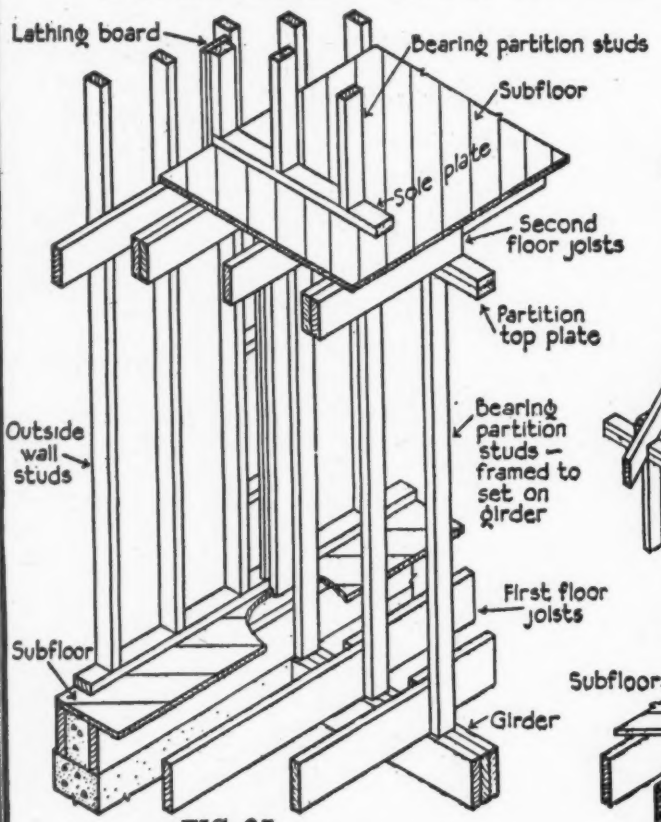


FIG. 25
FRAMING FOR BEARING PARTITION

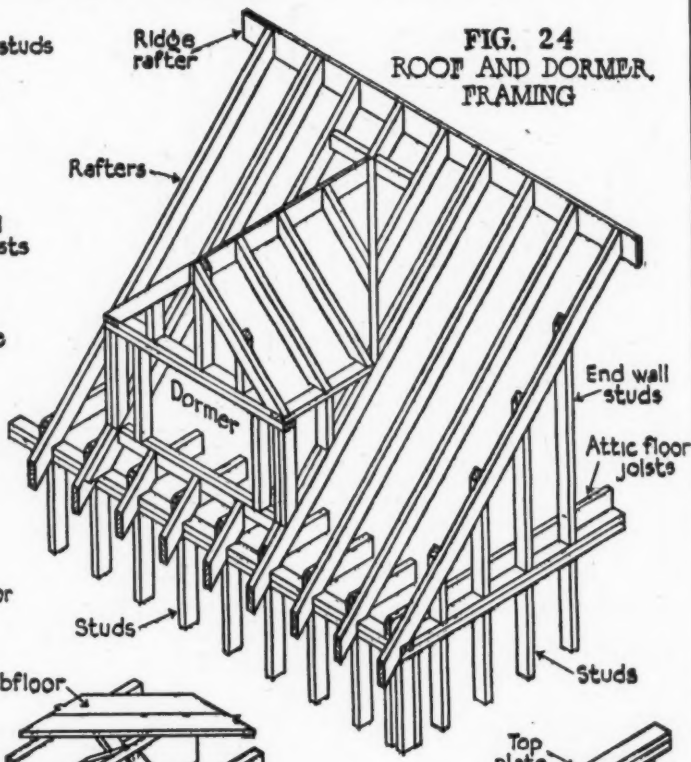


FIG. 24
ROOF AND DORMER FRAMING

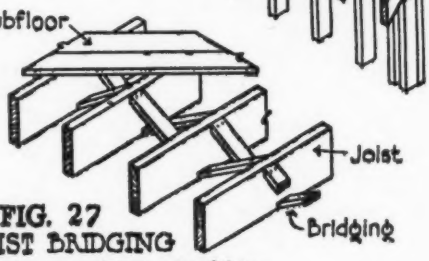


FIG. 27
JOIST BRIDGING
Note: Bridging should be nailed at top only until after subflooring is laid.

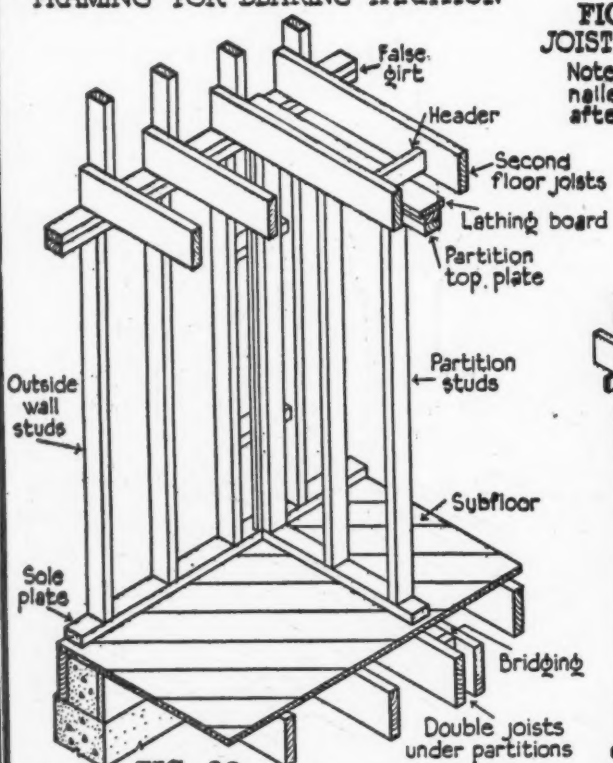


FIG. 26
FRAMING FOR NON-BEARING PARTITION

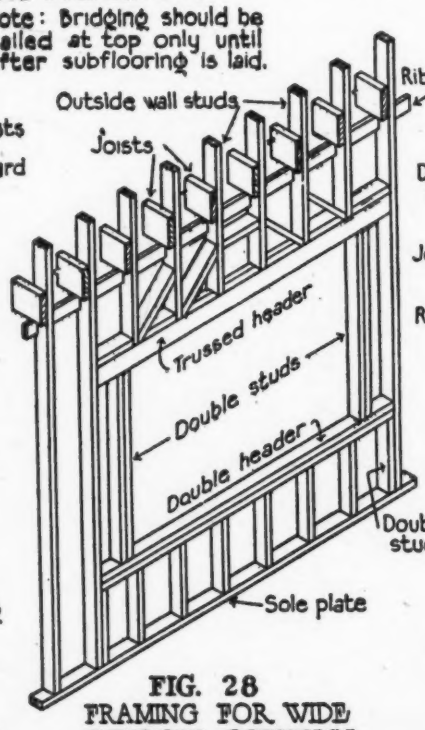


FIG. 28
FRAMING FOR WIDE WINDOW OPENINGS

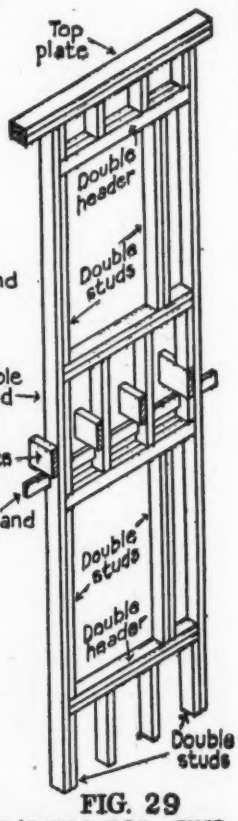


FIG. 29
FRAMING FOR TWO WINDOW OPENINGS — ONE ABOVE THE OTHER IN BEARING WALL

STANDARD DETAILS FOR HOUSE FRAMING

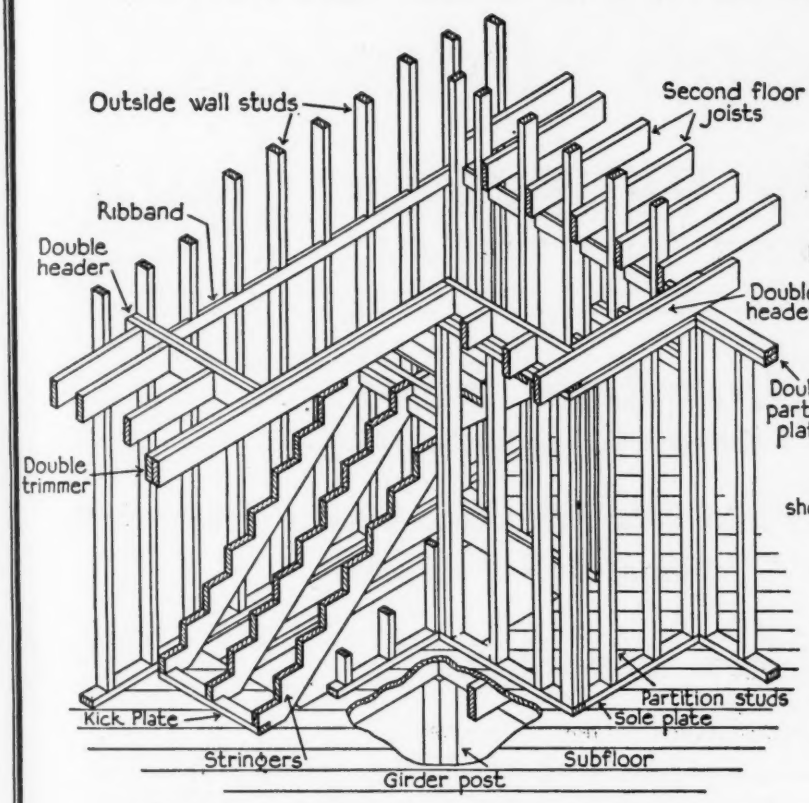


FIG. 30 FRAMING FOR OPEN STAIRWAY

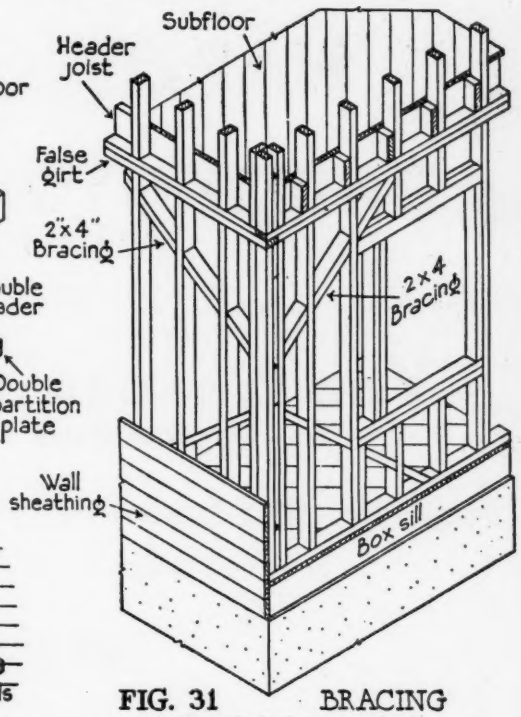


FIG. 31 BRACING
2"x4" Cut between studs
Sheathing applied horizontally

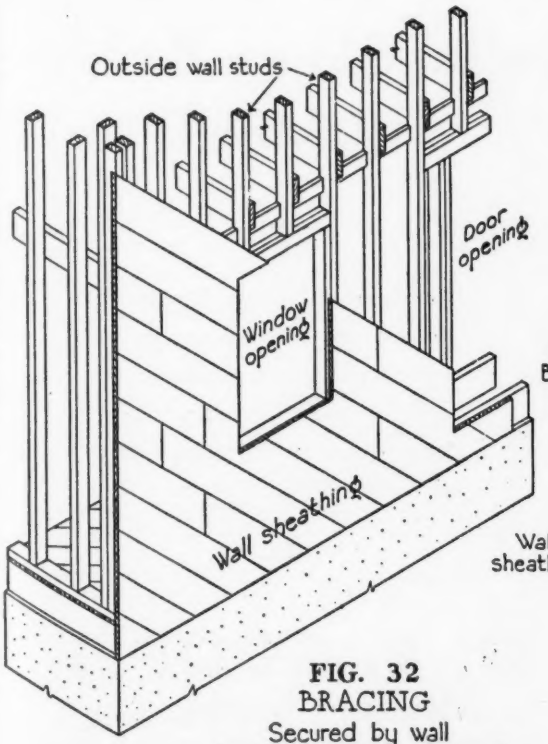


FIG. 32
BRACING
Secured by wall
sheathing applied diagonally

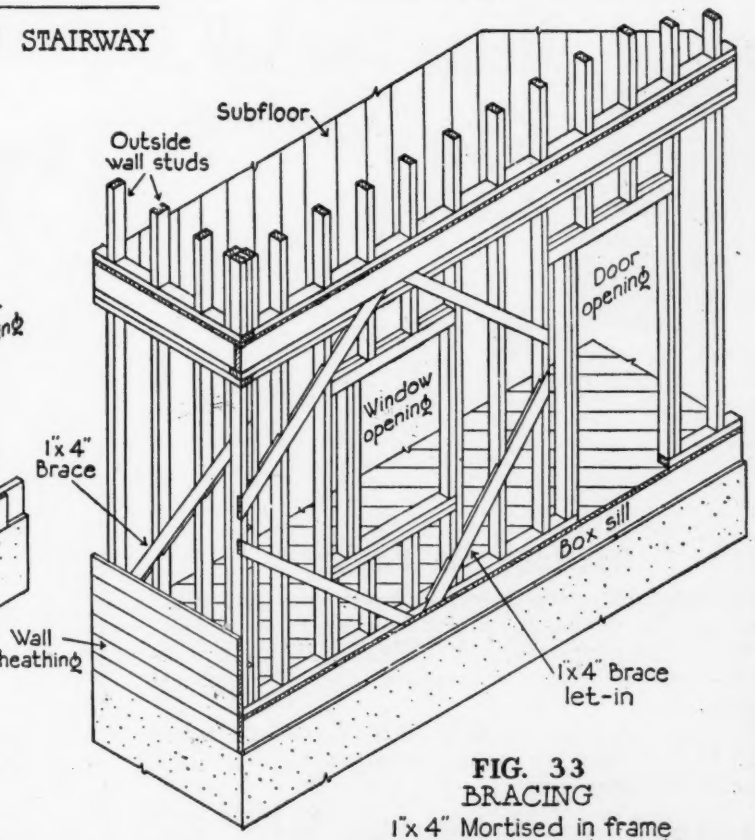


FIG. 33
BRACING
1"x4" Mortised in frame
Sheathing applied horizontally

NOW Available . . . Several Cars

• PERMAWOOD •
HARDWOOD PLYWOOD

DARLINGTON VENEER CO., INC.
DARLINGTON, SOUTH CAROLINA

Van Deinse Lumber Sales Corp.
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Douglas Fir - Sitka Spruce - Western Red Cedar - West Coast Hemlock - Ponderosa Pine
Lumber • Shingles • Plywood

19 Years' Experience

(In making inquiry, please mention this magazine)

Helps You Sell... *Fine Flooring*

Decades Of Beauty

No bulging, cupping floors; no open joints, no grain raising. The permanent water repellency of WOODLIFE assures surface beauty. WOODLIFE toxicity assures freedom from rot, termites and powder post beetles.

To have you treat this floor 12′ x 14′ cost the owner only $3.10 — and you make a nice profit as well as a staunch customer.

Protection Products Mfg. Co.
Mfrs. of CHEMICAL PRESERVATIVES Since 1921
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For 53 Years-- Better Home Building LUMBER

•

We hope it will not be long before we can again give our usual prompt dependable service that has distinguished our business for the past half century.

•

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Wholesale Lumber Co.
"All That's Best In Woods Of The West"
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Section 2

CONTENTS OF THIS SECTION

Joist Hangers
Columns and Posts
Areaways
Sheet Metal Products
Ventilating Louvres
Gutters and Troughs
Stove and Heating Equipment
Ornamental Products
Structural Products
Duct Work
Siding and Roofing Items
Metal Mouldings and Trim
Miscellaneous Items and Counter Merchandise
For Metal Doors and Windows see Section 3

For Related Sections See Master Index

METAL PRODUCTS

1. **Merchandising Trends**—The merchandising of metal products among retail lumber and building products dealers is rapidly gaining momentum.

The quick reconversion by the metal industries from war to peace time production is rapidly making available not alone the pre-war "staples" the use of which was commonly accepted by the construction industry—but also countless new products, which, by reason of the many advances made in manufacturing techniques, are now in constantly growing numbers becoming highly desirable additions to the retail dealer's sales and complete service policies.

2. **"One Stop" Merchandising**—In ever increasing numbers, prospective home builders—owners of existing homes requiring modernization—contractors—and casual shoppers—are taking advantage of the complete home service facilities offered by many progressive retail lumber dealers and building products merchants (their number is rapidly increasing).

Both the dealer and customer benefit by this practice. For the dealer, it means larger dollar volume. For the customer—greater convenience—"shopping time" saved—and fewer delays in delivery and progress of the entire project.

3. **Easier Financing**—Because all structural members and many other metal products become an integral, permanent part of the building project, they can well be included in the dealers overall material cost to the customer—and be included in the mortgage.

Since it has become a prevalent practice of dealers to assist their customers with regard to financing arrangements (refer to Sec. 22 — Financing and Insurance), the problem of arranging for the necessary credit approval has become greatly simplified and the customer is quick to recognize this convenience and use it.

Inventory Problems — The retail dealer's problem with regard to which of the many varieties of products should be handled—and the extent of stock inventory or "special" order items which he may include in his service to the customer—merits careful study and analysis.

To aid in finding the correct solution, a brief product description is given—and whether inventory item or "special" is indicated.

Product Description—of inventory items.—This list of items applies to three product groups which the customer may expect to find on hand.

(a) **Structural items**—construction products required on new construction or modernization—which "may be regarded as staples."
(b) **Store display items**—over counter units which consists of purely functional products—and those which are both functional and decorative.
(c) Decorative or ornamental products.

Inventory Minimums—In developing these several lists, estimated minimum stock quantities are indicated beside each item for immediate home construction requirements. These are based on the assumption that the demand will be for three or four new home jobs—and a reasonable stock for modernization requirements.

Product Description of Special Non-inventory items—used for building purposes—either purely functional or functional and decorative.

Because of the many varieties—sizes—weights—gauges—kinds of metal—and finishes—and also the requirement of either pre-punching, welding, or assembly, many items which, while they may be needed during construction and yet be beyond the scope of any dealer's stock inventory, must be supplied on special order.

Method of Handling "Specials"—Many items can be handled by the use of mounted display samples. Others are best dealt with by having up-to-date catalogs—descriptive pamphlets and pricing information available to the sales force.

Metal Products

Sales Items

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items.

Sources of supply for the items shown can be found in Products Directory.

Inventory items—Stock structural items:

Description	Suggested Stock
( ) Angle irons—for window and door lintels—fireplace arch supports, usually 3x3" in 3'0", 3' 6", and 4'0" lengths	12 of each size
( ) "Lally" columns or girder supports: 4" diam. with bottom and top plates 7'0" and 7'6" lengths.	12 of each size
( ) Adjustable or screw-type girder supports in 7' lengths	10 pcs.
( ) Joist hangers—or "stirrups"—to support joist ends where they contact girders and headers—furnished in single, double, and triple joist thicknesses, and to accommodate 2x8". 2x10", 2x12", 3x8", 3x10", 3x12" joists' depths and widths, also saddle type (which "straddle" the girder and support joists on two sides) initial stock of each size	50 pcs.
( ) Coal chute wall inserts	6 pcs.
( ) Basement sash and frame assemblies 3 Lt. approx. 8x10" glass size (unglazed)	20 units
( ) Clean-out doors—10", 12"—to install at base of flues or ash pits	6 pcs. each size
( ) Ash dump assembly for fire place hearths	12 units
( ) Fire place dome dampers	3 units each
( ) Heat saver fire place forms—with ducts and grilles	3 units each
( ) Basement window areaway surrounds (stock sizes to fit basement sash)	20 units
( ) Basement entrance door assemblies	6 units
( ) Milk or parcel receiving built-in units	6 pcs.
( ) Incinerator units (built-in)	4
( ) Incinerator units (portable)	4
( ) "Bell Traps" for basement and garage floors to connect floor surface with drainage system—and protect against fumes—furnished to fit 3" and 4" pipe	6 each size
( ) Clothes poles—7'	6 units
( ) Sheet metal products (steel) galvanized finish	
( ) Galv 24x96" plain sheets (26 gauge)	24 sheets
( ) Galv. 24x96" corrugated sheets (26 gauge) 1¼" corrugations—full width 26" covering width 24"—8' lengths	24 sheets
( ) Corrugated Ridge roll—2" roll—4" apron—26" lengths.	24 pcs.
( ) Plain Ridge roll—2" roll—26" lengths	24 pcs.
( ) Galv. Roll Valley (26 gauge) 16" width—50' rolls.	3 rolls
( ) Eaves drip edging—1x1x4"—10' lengths	20 pcs.
( ) Rake roll—1x2"—10' lengths	20 pcs.
( ) Flashing shingles—5x7"	500 pcs.
( ) Metal corner miters for siding application (reversible for inside or outside corners) 6", 8", 10"	1000 each size
( ) Exterior metal corner bead for stucco—or asbestos shingle siding—10' lengths—20 pcs. per bundle	2 bundles
( ) Finials—(for end of ridge cap)	12 pcs.
(for hip junctions)	6 pcs.
( ) Window casing moldings for stucco or siding application (with miters) 10' lengths—500 lin. ft. per crate	2 crates
( ) Access door assemblies—for plumbing, heating and wir-service centers—stock size 13x17" hinged	10 units
( ) Furnace pipe (lock joint-nested) 26 gauge—2' lengths—5", 6", 7", 8" diameter	12 pcs. each size
( ) Furnace pipe elbows—45°—90° adjustable	6 pcs. each size
( ) Furnace pipe casing collars.	6 pcs. each size
( ) Furnace pipe tee joints	6 pcs. each size
( ) Furnace pipe dampers	6 pcs. each size
( ) Ventilating louvres—8x12", 12x12", 8x16"—with rust-proof screen back	6 pcs. each size
( ) Metal wall ties for veneer masonry	2000 pcs.
( ) Pressed steel mail boxes—house attached or box type.	10 pcs.
( ) Pressed steel mail boxes—rural—post secured box with flag indicators	10 pcs.
( ) Picture mold inserts in plaster walls 10' lengths	1 crate each

(Continued on Page 99)

DONLEY DEVICES

HEATSAVER FIREPLACE UNIT • FIREPLACE CONSTRUCTION AND FURNISHINGS
INCINERATORS • GARBAGE, MAIL AND PACKAGE RECEIVERS

1895 - 1947

OVER FIFTY YEARS OF SERVICE
TO THE BUILDING INDUSTRY

THE DONLEY BROTHERS CO. • CLEVELAND • OHIO

An interesting fireside effect in a cottage in the woods.

Modern fireplace in a suburban home.

Fireplace in a Texas home retains the historic spirit.

PLANNING A SUCCESSFUL FIREPLACE

The test of a successful fireplace lies in how much it is used. Properly equipped and properly built, it will be in constant use and a source of comfort and charm.

For over 25 years The Donley Brothers Company has devoted much research and discussion to developing and disseminating the principles that contribute to the success of the finished fireplace. Since this feature of home building is to mean so much and since correcting a faultily built fireplace is an expensive job, Donley Brothers offer the following brief factors to be considered in successful fireplace planning:

Location: Several factors are involved, the first of which is the chimney, a definite feature of the exterior architecture. In some cases, its location is determined by the desirability of enclosing several flues in the same stack, including that of the main heating plant. Thus, the task of locating a fireplace is a work of co-ordination, in which utility and effect are important. Interior location includes consideration of proportions of the room as a whole.

Projection: A fireplace may stand flush with the wall, it may extend wholly into the room or it may project for a part of its depth. The greatest freedom comes in the case of a fireplace built against an outer wall, with a stack for its own use.

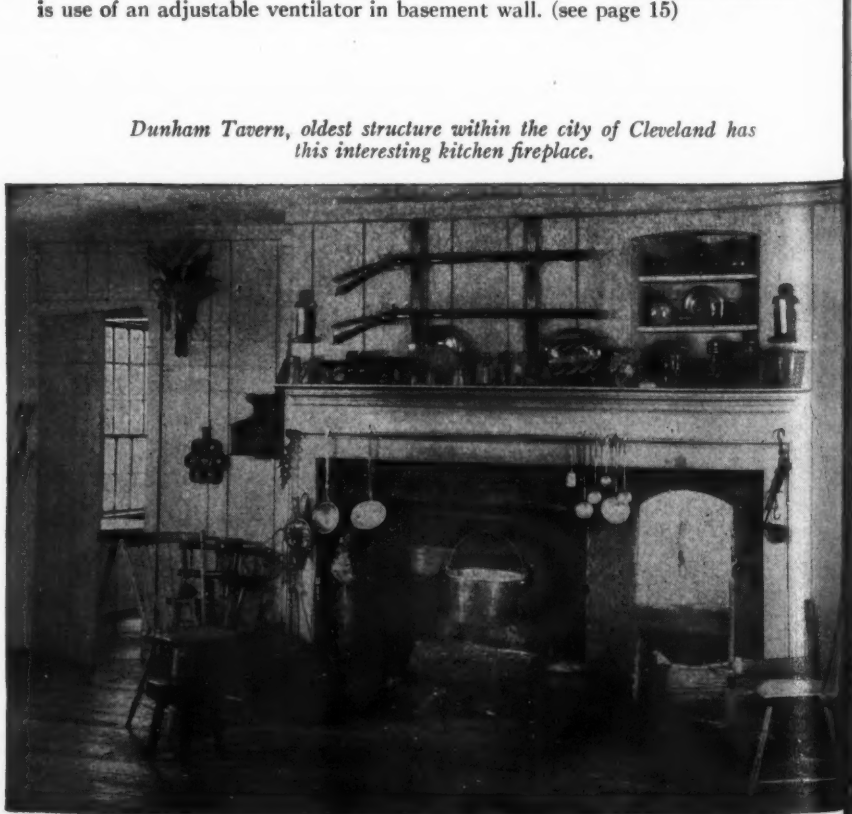
Size: Both esthetic and operating considerations must be heeded in determining the size of the fireplace. It is important not to "over-build" the fireplace. A lively blaze that comfortably fills a 30-inch fireplace yields more warmth than the same blaze in a 48-inch opening.

It must be remembered that a flue for a 48-inch fireplace is fifty per cent larger than for the smaller size. This means a corresponding increase in air supply needed for combustion, and to maintain the draft in the chimney.

Air Supply for Combustion: It takes air to run a fireplace—air for draft, oxygen for combustion. Until recent times there has been little difficulty in securing moderate updraft needed for the operation of a fireplace. But newer techniques of weather stripping, caulking and use of storm windows has made many interiors practically air tight. Perfect tightness prevents a satisfactory fireplace fire. If a furnace is operating, the only source for needed combustion air is down the fireplace chimney. Downdraft thus created prevents maintaining a fire on the hearth.

The solution to all these problems, as well as healthful respiration, is ventilated interiors. The slight opening of a basement window will generally provide air needed for the fireplace, furnace or incinerator. Another solution is use of an adjustable ventilator in basement wall. (see page 15)

Dunham Tavern, oldest structure within the city of Cleveland has this interesting kitchen fireplace.



DONLEY BOOK OF SUCCESSFUL FIREPLACES

DONLEY DEVICES Complete the Home

A SUCCESSFUL Fireplace is not a matter of chance but the result of careful study and planning. The Donley "Book of Successful Fireplaces" now in its Twelfth Edition is a brochure of 80 pages of interesting notes on fireplace history with illustrations, fireplace planning and building, portfolio of fireplace designs, outdoor fireplaces, corrections of fireplace difficulties and much other helpful information on the subject. It contains the results of over a quarter century of study and experience in design and construction of fireplaces and the production of fittings and equipment to insure complete fireplace satisfaction. Pioneers in the field Donley is today the recognized authority and fireplaces built to their plans and specifications with Donley fittings and equipment will not smoke and will give lasting satisfaction and pleasure. Price of the Twelfth Edition, 80-page book of "Successful Fireplaces" is 50c. Sent free to architects when requested on their letterhead.

BUILDING A SUCCESSFUL FIREPLACE

For Conventional Masonry Fireplaces

Different features of a fireplace bear such a close relation to each other that disproportion between parts or failure to provide adequately for a single function will result in an unsatisfactory fireplace. The table below gives the proper dimensions for the different parts for fireplaces of various typical sizes.

PRINCIPLES OF CORRECT FIREPLACE CONSTRUCTION

Size of Opening—To insure good draft, the area of flue should be at least one-twelfth that of fireplace opening. Openings in which the relation of height to width is greater than shown in table require flue area, not less than one-tenth the area of fireplace opening.

Separate Flue—A flue of correct size should be provided for each fireplace. It should start above the center and rise not less than 3 ft. above highest point of roof.

Smoke Shelf—Arrests down draft and prevents it from blowing smoke into the room.

Smoke Chamber—Just above the damper, its sides sloping about 7 in. to each foot in height. Smooth unobstructed walls are important.

Hearth Shape—Sides should go straight back for about 4 in. then be splayed at an angle of 5 in. to the foot.

Rear Wall—Should be plumb for 14 to 15 in. then slope forward to form smoke shelf and to support rear flange of damper. This shape deflects heat forward into the room while smoke and gases pass through the damper.

Damper—Explicit attention must be given to damper size and proper placing. Damper should be set with turned-up flange against the front wall and rear flange resting on the smoke shelf. Opening of damper should not be directly under the flue but forward of it. Damper should be 4 to 8 in. above fireplace opening.

Size of Damper—Donley Dampers are made in eleven sizes for fireplaces from 24 to 96 inches wide. A number 230 or 330 damper should be used for fireplaces having openings between 24 and 30 inches wide. For other sizes follow the same rule.

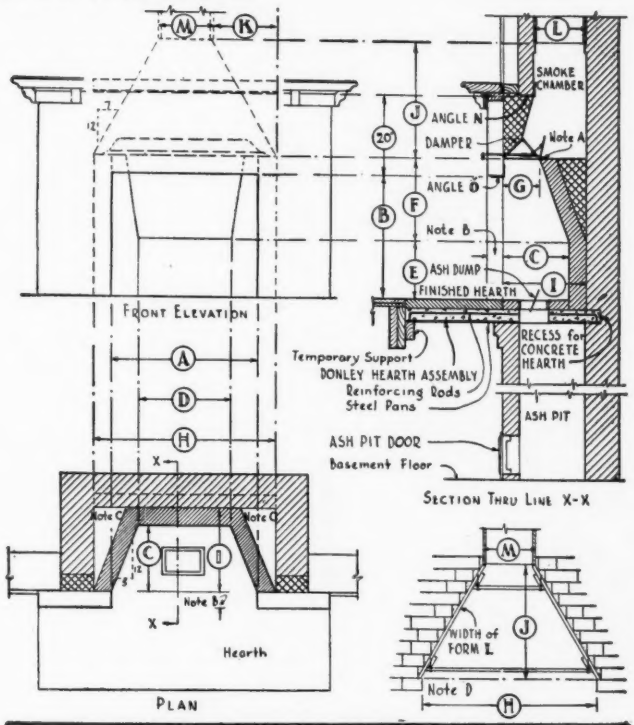
NOTES TO PLAN AT RIGHT

Note A: Back flange of damper must be fully supported and shielded from intense heat by back wall masonry.

Note B: Drawing shows thickness of brick front as 4 in. This will vary with materials used.

Note C: These hollow spaces should be filled to form solid backing. If desirable to include a flue in either space the outside dimensions should be increased.

Note D: Shows a good way to build a smoke chamber by using four boards held apart by spreaders. Letters correspond with those in table.



DIMENSIONS																EQUIPMENT									
FINISHED FIREPLACE OPENING							ROUGH BRICK WORK						HEARTH ASSEMBLY	ACCESSORIES					FURNISHINGS			
WIDTH	HEIGHT	DEPTH	BACK	VERTICAL BACK WALL	SLOPED BACK	THROAT	WIDTH	DEPTH	SMOKE CHAMBER SLOPE of SMOKE CHAMBER	STD RECTANGULAR FLUE LINING Outside Dimension	STD ROUND FLUE LINING Inside Dia			DAMPER Rotary Control	DAMPER Poker Control	ASH DUMP	ASH PIT DOOR	STEEL ANGLES "A" 3×3×¼ "B" 4×3×¼ "C" 5×3½×¼ LENGTH IN INCHES		FIRE BASKET	FIRE SCREEN	ANDIRONS	FIRE SET
A	B	C	D	E	F	G	H	I	J	K	L M	Φ					N	O				
In	In	In	In	In	In	In	In	In	In	In	In x In	In	No	No	No	No	In x In		No	No	No	No
24	24	16	13	14	14	8¾	39	20	24	15	8½×8½	10	72	330	230	58	10×12	A 36	A 30	24			
28	28	16	15	14	18	8¾	42	20	25	14½	8½×13	10	72	330	230	58	10×12	A 42	A 36	24			
30	30	16	17	14	20	8¾	42	20	25	14½	8½×13	10	72	330	230	58	10×12	A 42	A 36	28			
32	28	16	19	14	20	8¾	44	20	26	15½	8½×13	10	72	333	233	58	10×12	A 42	A 42	28			
34	28	16	21	14	20	8¾	46	20	28	16½	8½×13	12	72	336	236	70	10×12	A 48	A 42	30			
36	30	16	23	14	20	8¾	46	20	28	16½	13×13	12	72 84	336	236	70	10×12	A 48	A 42	34			
40	30	16	27	14	20	8¾	50	20	32	18½	13×13	12	72 84	342	242	70	10×12	A 48	A 42	34			
42	30	16	29	14	20	8¾	54	20	35	20½	13×13	12	84 96	342	242	70	10×12	B 54	A 48	34			
48	33	18	33	14	23	8¾	59	22	40	23	13×13	15	96	348	248	70	10×12	B 60	B 54	40			
54	36	20	37	14	26	13	67	24	42	24½	13×18	15	96	354	254	70	12×15	B 66	B 60	40			
60	39	22	42	14	29	15	71	26	45	26½	18×18	18	96	360	260	70	12×15	B 66	B 66	57			
72	40	22	54	14	30	13	83	26	56	32½	18×18	18	Special	372	272	70	12×15	C 80	C 80	57			

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DONLEY FIREPLACE DAMPERS

Provide efficient draft control and smooth correctly proportioned passage for smoke and fumes. Installed according to instructions, they promote correct construction of other features of the fireplace.

Throat Is Narrow—Up to and including 48-in. size the Donley Damper has 8-in. opening at base and 4¼-in. at valve. When correctly placed against the forward wall there is room for the back wall to assume the proper forward slope for efficient heating. Narrowness also enables damper to be set forward of flue so that down-draft is pocketed on smoke shelf, back of uplifted valve plate.

Front Flange—Distinctive turned-up front flange of Donley Dampers permits correct installation at front of fireplace, and at approved height above the opening, regardless of type of facing material or shape of opening.

Construction—Of highest grade cast iron. Those marked § are also available in welded steel construction.

THREE TYPES OF OPERATING DEVICE

Rotary Type Control—Valve plate is operated by turning a die cast brass-plated knob on front of the fireplace. Regularly supplied in center but also made at right.

Poker Control Type—Valve plate operated by hooking poker in ring hanging down in center. TO OPEN DAMPER, pull forward on ring. TO CLOSE, lift slightly and push back. It is less conspicuous than the Rotary Control.

Chain Control Type—Has valve plate pivoted in center. Operated by pulling one of the two chains. Made in 30, 36 and 42-in. sizes only to meet occasional demand.

DIMENSIONS OF DONLEY DAMPERS

Donley Dampers are made for fireplaces having openings 2 to 8 ft. in width. The size of damper is determined by the maximum width of the fireplace opening. The proper damper to use for each width of fireplace opening is shown in the table below.

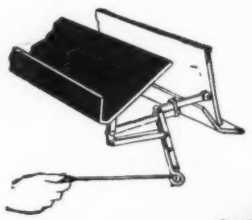
The diagram and table enable the designer to calculate the space required for any damper. Where two dimensions are indicated in the same line of the diagram the smaller is for sizes up to and including Nos. 248 and 348, and the larger dimension for Nos. 254 and 354 and greater. Both operating devices are indicated to show dimensions.

For construction details on fire places, see diagram and table of dimensions on page 3.

DIMENSION IN INCHES

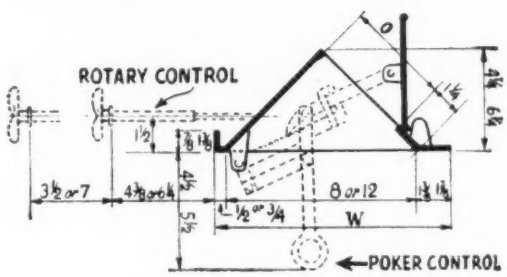
Fireplace Opening Width	Poker Control No.	Rotary Control No.	Throat Bot. T	Throat Top A	Throat Op'g. O	Overall L'th. L	Overall Back B	Overall W'th. W
24″	224	324	24	17 3/16	4¼	28½	21	9⅞
30″	§230	330	30	23 3/16	4¼	34½	27	9⅞
33″	§233	333	33	26 3/16	4¼	37½	30	9⅞
36″	§236	336	36	29 3/16	4¼	40½	33	9⅞
42″	§242	342	42	35 3/16	4¼	46½	39	9⅞
48″	248	348	48	41 3/16	4¼	52½	45	9⅞
54″	254	354	54	42½	7	58½	46	14⅝
60″	260	360	60	49½	7	64½	53	14⅝
72″	272	372	72	60½	7	76½	64	15¾
84″	*284	*384	*84	73½	7	88½	77	14⅝
96″	*296	*396	*96	85¾	7	100½	89	14⅝

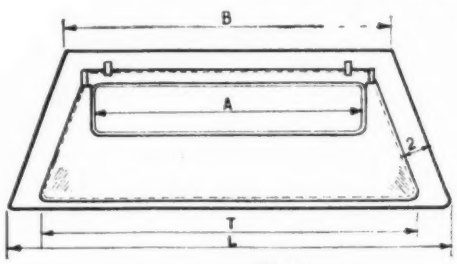
*Two valve plates. §Steel or Cast Iron.



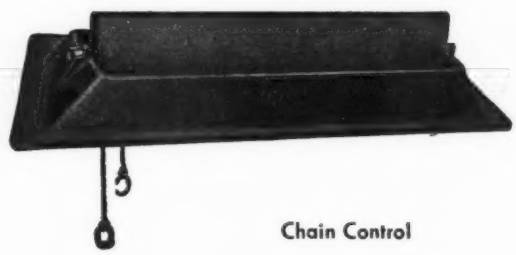
Left—Poker Control

Below—Rotary Control





PLAN



Chain Control

OTHER FIREPLACE EQUIPMENT

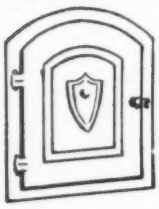
DONLEY ASH DUMPS

No. 57 Ash Dump

No. 58 Ash Dump (No. 70 Similar)

Cast iron trap doors placed in the hearth for convenient disposal of ashes. No. 58, 8 x 5 in. and No. 70, 10¼ x 7¼ in. have single door pivoted off center, opened and closed with poker. No. 57, 7 x 5 in. has two recessed doors which close themselves. All ash dumps made of stove grade cast iron to resist warping. Doors are locked into frames.

DONLEY DUTCH OVEN DOOR

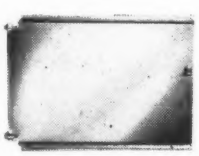


An ornamental door made by expert molders from highest grade cast iron. Used to reproduce Early American Kitchen fireplace or as an ornamental cleanout door beside basement fireplace. Regularly supplied with art black finish, also available in plated antique brass. Fits wall opening 12½ x 15½ in. Over-all size 15 x 18 in.

DONLEY ASHPIT CLEANOUT DOORS

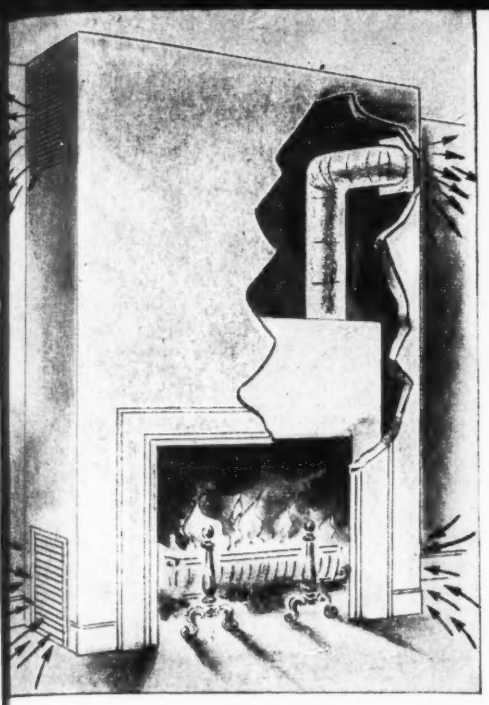
The cut shows the new design of steel, hinge-type door and frame. Made in the three sizes as shown of 12-gauge steel. The frame has a wide 2″ flange to support brick work.

The larger doors and frames are cast iron except as noted. For other cast iron doors, see Incinerator Doors. (Page 10).



Width-Height	Shipping Weight
8 x 8	70 lbs. per dozen
12 x 8	110 lbs. per dozen
12 x 12	150 lbs. per dozen
18 x 24	50 lbs. each
24 x 30	120 lbs. each
*24 x 30	70 lbs. each

*Steel Door



Cutaway showing Heatsaver and circulation of air through it.

DONLEY HEATSAVER FIREPLACE UNIT

The Donley Heatsaver is an improved metal fireplace unit which supplements the radiant heat from the open flame with a generous amount of air "warmed" by conduction through steel plates at back, sides and above the fire and, by convection, circulated throughout the room or adjoining rooms.

WIDE RANGE OF USEFULNESS

The Heatsaver is a sufficient system for small homes, cottages or homes in mild climates.

In larger homes with a central heating plant the Heatsaver carries the heating load in spring and fall. In churches, clubs, etc., it heats one or two rooms for committee meetings without heating the entire building at a considerable saving over firing the main heating plant.

For heating only the room in which the fireplace is located, round furnace pipes from openings in the top of the casing lead to grilles—either on the front of the fireplace or in the sides of the chimney if this projects into the room.

Showing finished appearance of a Heatsaver Fireplace with cold and warm air grills same as in cut at left.

Regardless of the number of rooms to be heated, provide sufficient outlets. Heat is wasted if air cannot flow freely through the heating chamber. For maximum heat from the Heatsaver Fireplace use number and size of outlets on page 6.

Insures Correct Construction

The Heatsaver minimizes the risk of an unsatisfactory fireplace. It is a complete, correctly proportioned metal unit including the damper. The inside of the fireplace is already accurately built which eliminates errors of inexperienced workmen. The Heatsaver, correctly installed, assures a successful fireplace, smoke-free and smudge-free.

HEAT OUTPUT

The amount of heat from any size Heatsaver is unusually great due to four exclusive features.

First, the improved Heatsaver has a rectangular firebox which increases the circulating heat and permits length of fuel wood the full width of opening.

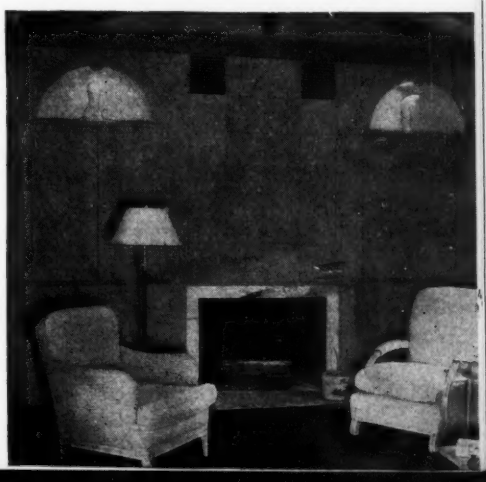
Second, the Heatsaver makes use of the heated surface above the fire as well as the surfaces surrounding it.

Third, special heat circulating tube takes air from the hottest areas and passes it through the smoke chamber where it picks up additional heat which is then diverted to the hot air ducts.

Fourth, the ingenious baffle sheets (an exclusive Donley feature) guide the moving air so that it passes directly over the heated surfaces. These sheets keep all the air in motion, prevent pocketing of heated air and transfer all available heat to the room. They, together with the heat circulating tube, eliminate the need of an insulating jacket.

Recreation room in an Ohio home is kept warm and cozy by this Heatsaver.

Heatsaver in a Ft. Lauderdale, Fla. home was greatly appreciated during the cold winter of 1940.



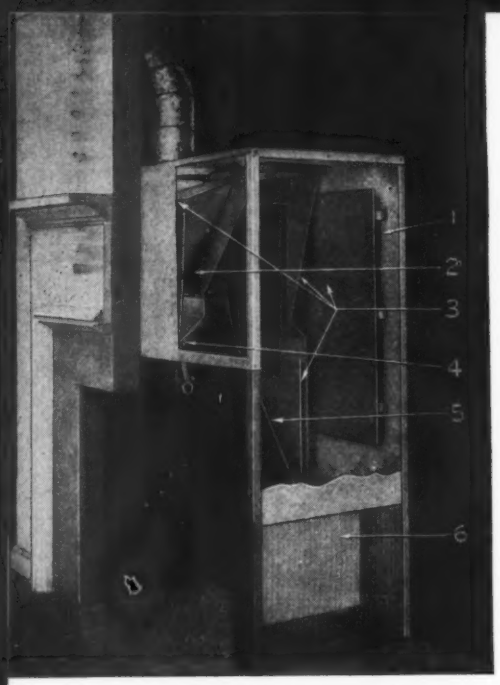
SELECTING THE PROPER SIZE

To assist in selecting an appropriate size of Heatsaver Fireplace, we give in the table below our recommendations for a number of typical rooms. In choosing a Heatsaver for a given location, consideration must be given to (1) the cubical contents of the room in which it is located and (2) that of the whole space to be heated, the space available (3) for the fireplace itself and the extent of reliance (4) on fireplace heating as well as (5) the size of the flue. (6) Climatic conditions, type of building construction, type of fuel used and rate of fuel consumption.

If there is doubt about proper size, send us complete information about the different factors and we will make recommendations.

TABLE OF SUGGESTED SIZES

Size of Room in Feet	Heatsaver Size When Located On	
	Short Wall	Long Wall
10x14	No. 26	No. 26—30
12x16	No. 26—30	No. 30—34
12x20	No. 30—34	No. 34—42
12x24	No. 30—42	No. 34—42
14x28	No. 34—42	No. 42—48
16x30	No. 34—42	No. 48—54
20x30	No. 42—48	No. 54—60

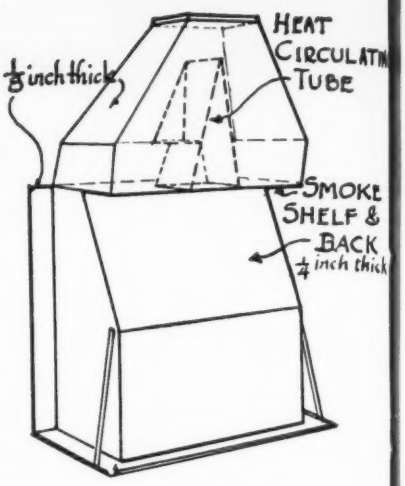


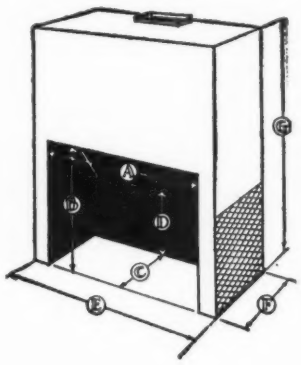
Cutaway View Construction of Heatsaver

1. *Large warm-air chamber.*
2. *Warm air duct through smoke chamber that equalizes the heat.*
3. *Baffle sheets keep outer shell cool and increase delivery of heat through ducts.*
4. *Donley poker control damper.*
5. *Quarter inch steel plate used for smoke shelf and back of fire chamber.*
6. *Cold air inlet screened to prevent entrance of rodents.*

STURDY CONSTRUCTION

The Donley Heatsaver Unit is built along the lines of a warm air furnace, having an air chamber surrounding the fire. It is constructed to give a life-time of dependable service and satisfactory performance. Side walls of fire chamber are of No. 12 gage steel. The back of the chamber and the smoke shelf are of ¼ inch steel boiler plates. Other structural parts are of No. 12 gage steel. Casing designed to be pierced for outlet pipes, as in warm air furnace is 26 gage galvanized steel. Steel mesh excludes vermin from inlet openings to warm air chamber. A throat damper designed for poker control (page 4) is integral with the unit. Joints and fastenings of the Heatsaver are electric arc-welded for maximum strength. Designed by experts and made to exact specifications, perfect draft is assured with no danger of a smoky fireplace due to careless workmanship.





DIMENSIONS OF HEATSAVER UNITS

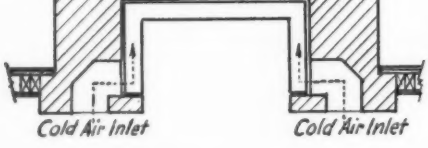
Heatsaver No.	Heatsaver Dimensions in Inches							Shipping Weight
	A	B	C	D	E	F	G	
26	26	24	16	16	33	21	51	308
30	30	28	16	16	38	21	55	355
34	34	28	16	16	42	21	55	395
42	42	30	18	16	50	23	62	500
48	48	30	18	16	58	23	62	565
54	54	34	20	18	66	26	80	890
60	60	34	20	18	72	26	80	1030

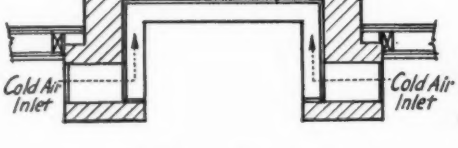
Location of Cold Air Inlets

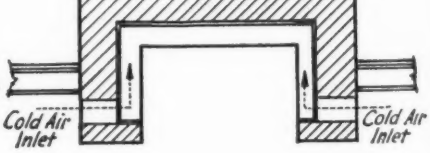
The accompanying diagrams show a number of suggestions for the location of cold air inlets.

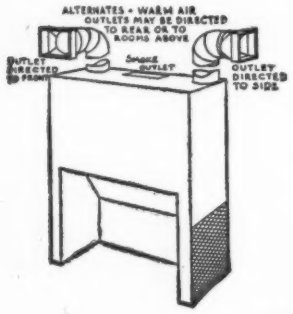
No. 1—Where a fireplace is to be installed in an existing building having none, this design permits the flue to be placed entirely outside the frame wall and enables the fireplace to be built with a minimum of cutting. The amount of projection is governed by the size of flue and thickness of wall between flue lining and outside wall. **No. 2**—Where wall is large enough to permit the fireplace to project into it without apparent crowding and where inlet grilles must be inconspicuous this design is recommended. **No. 3**—Similar to No. 2 except requiring slightly less projection into the room by using a 6″ instead of a 9″ grille. The projection into the room is governed by width of grille and type of fireplace facing material used.

Other arrangements for cold air inlets have been used to suit special requirements. Thus, grilles may be placed in the baseboard at the sides of the fireplace or even across the room and air brought through ducts under the floor. Another arrangement draws air from the back of the fireplace with the grille in another room.



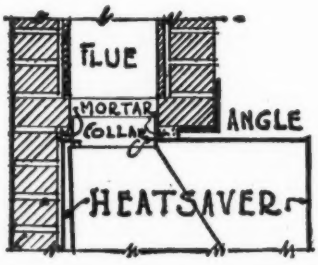






Arrangement of Warm Air Outlets

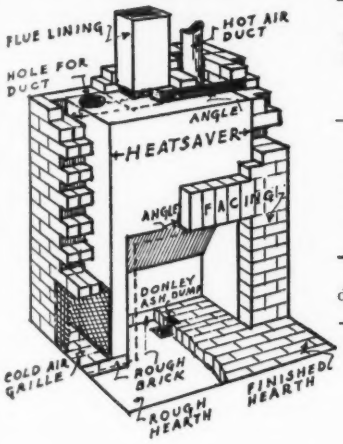
Drawing at left shows various positions and directions of warm air outlet pipes. A study of this diagram plus diagrams showing cold air inlets and rough masonry dimensions (page 7) will aid in determining the projection of fireplace into room. Where inlets and outlets are desired at the sides of the fireplace breast, it must project into the room 9 inches plus the thickness of facing material. If outlets are located above mantel on the face, but cold air inlets are required at sides, fireplace must project into room not less than the 6 inch width of grille plus thickness of facing material.



Method of Attaching to Flue

If the unit is put in place before the brickwork is erected, the fitting of the flue to the Heatsaver should not cause any complications. It is facilitated by a mortar collar projecting above the Heatsaver. Care should be taken to see that mortar and debris do not enter the unit. Note also that front chimney masonry is supported on an angle, not the body of unit.

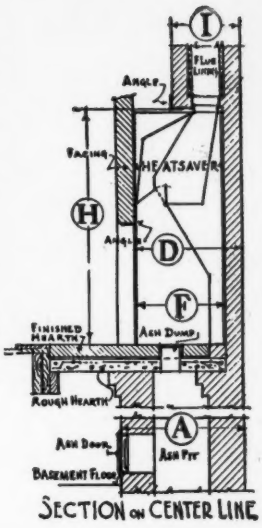
Installation Sketch



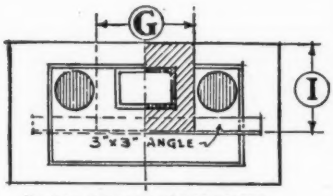
ROUGH MASONRY DIMENSIONS FOR BRICK CONSTRUCTION

Heatsaver No.	Below Hearth		Above Hearth		Heatsaver Recess Dimensions			Flue Size
	Width	Depth	Width	Depth	Width	Depth	Height to Lintel	Over-All Dimensions
	A	B	C	D	E†	F	H	
26	50	30	50	26	34	22	52	8½x 8½
30	55	30	55	26	39	22	56	8½x13
34	59	30	59	26	43	22	56	8½x13
42	67	32	67	28	51	24	63	13 x13
48	75	32	75	28	59	24	63	13 x13
54	83	35	83	31	67	27	81	13 x18
60	89	35	89	31	73	27	81	13 x18

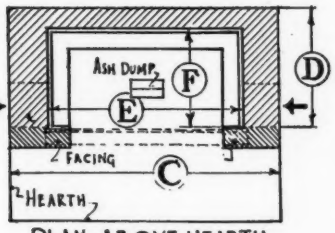
Notes: †This measurement is one inch more than size of unit. Center of flue should be directly above center of dimension.



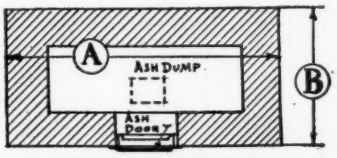
SECTION ON CENTER LINE



PLAN ABOVE HEATSAVER



PLAN ABOVE HEARTH



PLAN BELOW HEARTH

NECESSARY EQUIPMENT FOR INSTALLING HEATSAVER FIREPLACE

To be ordered as required with the Heatsaver.

Grilles—Inlet Grille No. 57. Stamped steel louver type which conceals interior. Outlet Grille No. 53. Stamped steel and metal frame for attaching to outlet box. Grille has sponge rubber cushion to insure tight fit to wall to prevent soiling the wall. All grilles regularly furnished with gray prime coat.

Ash Dump and Ash Pit Door—See table below.

Steel Angles for Fireplace Opening and Chimney—See Dimensions in table below.

Piping—See note in table below.

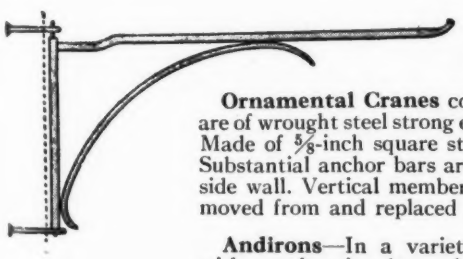
DIMENSIONS IN INCHES

Fireplace Opening and Heatsaver No.	Ash Dump No.	Ash Pit Door	Steel Angle for Fireplace Opening C—3x3x$\frac{1}{4}$ D—4x3x$\frac{1}{4}$	Steel Angle for Chimney A—5x3½x$\frac{1}{4}$ B—6x4x$\frac{3}{8}$	Cold Air Intake Grilles No. 57 Steel Installed as A, B, C, D, E	Upper Warm Air Outlet Grilles No. 53 Steel	Round Warm Air Ducts from Unit to Outlet Grills *See Note	Outlet Boxes at Upper End of Ducts *See Note
26x24 No. 26	58	10x12	C-30	A-45	Use 2 No. 57 9x13 Or 2 No. 57 6x19	Use 2 No. 53 11¾x 9¼	8	8x10
30x28 No. 30	58	10x12	C-36	A-50		Use 2 No. 53 11¾x 9¼	8	8x10
34x28 No. 34	70	10x12	C-42	A-54	Use 2 No. 57 9x15 Or 2 No. 57 6x23	Use 2 No. 53 11¾x 9¼	8	8x10
42x30 No. 42	70	10x12	C-48	A-62		Use 2 No. 53 11¾x 9¼	8	8x10
48x30 No. 48	70	10x12	D-54	A-70	Use 2 No. 57 9x19 Or 2 No. 57 6x29	Use 2 No. 53 13¾x10¼	9	9x12
54x34 No. 54	70	12x15	D-60	B-78		Use 2 No. 53 13¾x10¼	9	9x12
60x34 No. 60	70	12x15	D-66	B-84		Use 2 No. 53 13¾x10¼	9	9x12

***Note:** Galvanized piping and tinned outlet boxes for warm air outlets supplied when ordered. If a sketch of proposed installation is sent, we will figure quantity of piping necessary.

On orders where pipe, elbows and outlet boxes are included, but the number of each required is not indicated, the following quantities of appropriate sizes, being sufficient for the average installation, will be shipped:

2—2'0" Lengths of pipe
2—1'0" Lengths of pipe
4—Adjustable elbows
2—Outlet Boxes



DONLEY FIREPLACE FURNISHING

Ornamental Cranes come in 4 standard sizes and are of wrought steel strong enough for cooking if desired. Made of ⅝-inch square steel bars welded at joinings. Substantial anchor bars are provided for building into side wall. Vertical member made so crane may be removed from and replaced in anchors.

Andirons—In a variety of models to harmonize with any interior decoration. Made of cast brass and cast iron with plated antique brass or heat-resisting black painted finish.

Fire Sets—Consist of shovel, poker, tongs, brush, and holder. Made of steel, cast brass or iron in a variety of models.

Screens—Made in close fitting flat and folding types.

Fuel Containers—Wood carriers and coal hods in attractive shapes and finishes.

DONLEY EQUIPMENT FOR OUTDOOR FIREPLACES

Donley has developed a wide variety of outdoor fireplace equipment from that of the simplest outdoor grille to a complete unit for all types of cooking such as that illustrated at left. Various units can also be combined to meet most any desired arrangements.

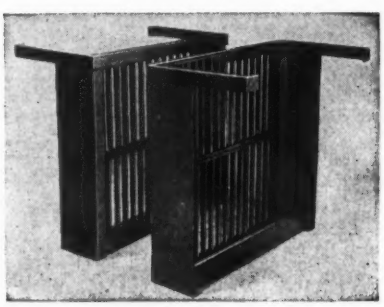
Complete list is given in the table below.

No. 20 Range Assemblies

The number 20 series is made in a variety of combinations and is the basic unit in many outdoor fireplaces. The frame is arranged for adjusting the height of grates according to the fuel used. It solves the question of enclosure of the flame and smoke and includes a top which when raised protects the outside of the chimney masonry from defacement by smoke.

The Range unit consists of a strongly welded frame with grates at three levels to support movable grates. Solid top sections may be substituted for one or both of the upper grates.

No. 40 Double Steak Grill



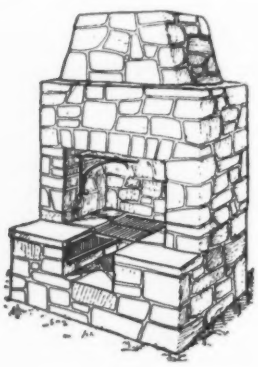
The illustration above shows the two principal parts of the Donley Duplex Steak Grille—two narrow, basket-like fire containers with lugs at the top that are embedded in the masonry. Masonry recess is 12 inches wide, 12 inches deep, and 24 to 30 inches high. Sides and bottoms of basket are of heavy gage steel. Sides consist of two cast iron grids per unit and are readily removed for cleaning. Unit includes removable top grate for other cooking uses.

No. 30 Charcoal Stove

This charcoal stove unit can be used in public parks or at home. May be used as shown or anchored in a concrete slab or enclosed in masonry, in which case an 8 x 8 inch cast iron door is installed in the masonry at grade for removal of ashes. Doors and grates are cast iron, other parts of steel. Top grid is of $\frac{7}{16}$ inch steel rod, welded construction. The grid is hinged for access to fire chamber. Height, 24 in., size at top, 14½ in. wide and 20½ in. long. Shipping weight, 66 lbs.

No. 70 All-purpose Assembly

Two purpose design shown below combines cooking facilities and warmth. It has a hearth elevated 24 inches above grade and extended forward. (Central hearth is 12 inches wide and equipped with channel slides on which to support grates at fire and cooking levels). When used for warmth, grates at hearth level are pushed to rear to support fuel. For cooking, grates are pulled forward. Fire is supported by grate 6 inches below. Space below is for ashes.



The crane is a great aid in cooking as it will support pots and kettles for boiling or pot roasting. It is described on page 7.

OUTDOOR FIREPLACE EQUIPMENT

Unit No.	Description (Use Numbers when Ordering)		Shipping Weight
10A	Grate Area 12" x19½"	2 Grates 12"x19½"x½"	22½ lbs.
10C	Grate Area 12" x25"	2 Grates 12"x25"x½"	30 lbs.
20	Range Assembly 18"x29"x14"	Frame including Hinged Top 4 Grates, 2 Doors, 1 Angle	124 lbs.
20-1S	Range Assembly 18"x29"x14"	Frame including Hinged Top 3 Grates, 2 Doors, 1 Angle 1 Solid Top Section	124 lbs.
20-2S	Range Assembly 18"x29"x14"	Frame including Hinged Top 2 Grates, 2 Doors, 1 Angle 2 Solid Top Sections	124 lbs.
30	Charcoal Stove 14½"x20½"x24"		66 lbs.
30A	Charcoal Stove 14½"x20½"x24"	Includes 1 8x8 Ash Pit Door	71 lbs.
40	Duplex Grill (Built-in) Assembly	2 Frames and Baskets 16"x16"x3" with Anchors 1—12"x19½"x½" Grate	52 lbs.
50	Portable Duplex Grill	13"x13"x18" in carton	17 lbs.
60	Dutch Oven Assembly	1 Dutch Oven Door 1—12"x10" Ash Door 2—12"x18" Grates	53 lbs.
70	Universal	2 Channels with Anchors 4—12"x19½"x½" Grates 1 No. 2 Crane 1—3"x3" Angle 48"	95 lbs.

DONLEY FIRE BASKETS

These simple and graceful firebaskets are cast from the best quality of stove plate cast iron and have a record for enduring severe service for years. They are a product of Donley policy to co-ordinate every feature of the fireplace for efficient operation.

Splayed Sides for Masonry Fireplaces

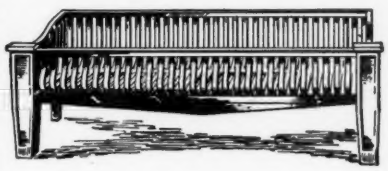
Sides splayed inward to coincide with angle of properly designed fireplace. Removable ends allow logs of any length.

Front Order by this No.	Back	Depth	Shipping Weight	Suitable for Fireplaces with Opening Widths of
24"	12½"	15"	42 lbs.	26" to 28"
28"	16½"	15"	46 lbs.	30" to 34"
30"	18½"	15"	48 lbs.	32" to 36"
34"	22½"	15"	54 lbs.	36" to 43"
40"	28½"	15"	70 lbs.	44" to 60"
57"	45½"	15"	110 lbs.	60" to 72"

Height at back, 12"; at front, 10½". Clearance for andirons under front, 5".

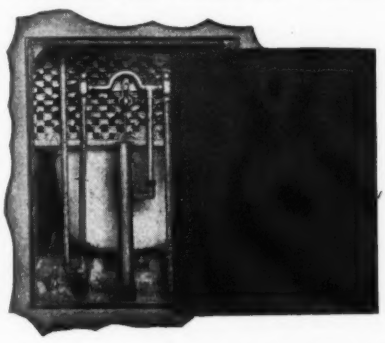
Straight Sides for Heatsaver Fireplaces

It is designed specially for the Heatsaver. Similar to the masonry fire basket, except that the sides are square. Will also serve for the occasional masonry fireplace built with square sides.



Front Order by this No.	Back	Depth	Shipping Weight	Suitable for Heatsaver No.
25"	25"	15"	49 lbs.	26
29"	29"	15"	53 lbs.	30
33"	33"	15"	69 lbs.	34
41"	41"	15"	77 lbs.	42

DONLEY ACCESS DOORS

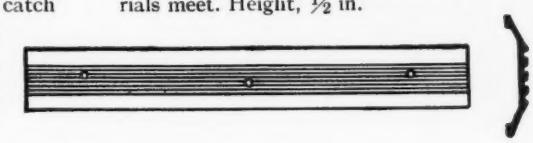


Save the need of tearing out plaster to reach hidden plumbing, wiring or steam pipes. Absolutely flush with the wall they may be caulked and painted or papered.

Unit consists of frame and door. Frame outer edge perforated for plaster key and easy nailing. Door held in place by two lugs at bottom and interior button catch at top. Catch operated by inserting screwdriver and turning. Door of furniture type steel will hold its shape. Finished in gray priming coat. Made in 5 sizes with door openings 8 x 10, 12 x 16, 16 x 20, 18 x 24 and 20 x 30 in.

DONLEY METAL THRESHOLDS

Made of cast iron, extruded brass or aluminum 4 in. wide. They give long wear, assure a close fitting door and make a neat attractive joint where contrasting materials meet. Height, ½ in.



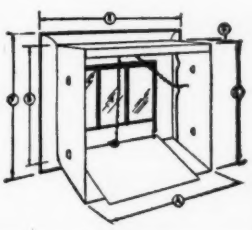
DONLEY COAL CHUTES—FOUNDATION AND GRADE LINE

Highly durable, these chutes withstand the most battering service without defacement. The door when open for service is held upright by the formation of the hinges and protects wall of building from injury by flying fuel. Glass paneled doors have a shield which drops over glass when door is open but does not obstruct light when door is closed.

Automatic latch secures the door firmly when door is closed. No exposed locking device on which burglar can work.

Donley Chutes have copper steel rust-resisting, body reinforced by steel angles. Frames and hinges are of copper-bearing steel or malleable iron.

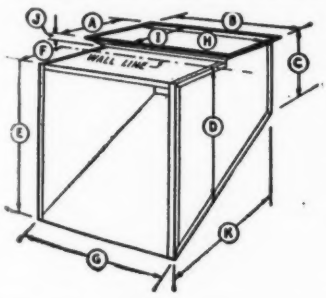
Automatic lock, released from inside only, with chain release which may be carried outside the bin.



Foundation Chutes—For installation in the foundation wall they are made in thirteen types which differ in regard to the doors, straight or slanting bottom and availability of hoppers. Clear glass is bedded on cork and held in place by spring clips.

Order by No.	Description		Rough Wall Openings			Chute Dimensions						Bottom of Chute	Shp'g. W'ght.	Hoppers
	Door	Frame	Wide	High	Deep	A	B	C	D	E	F			
19	Solid Steel	Steel	24"	17"	8"	22"	16"	16"	8"	25"	19"	Straight	31 lbs.	None
48	Clear Glass, 3 Lts.	Steel	24"	17"	8"	22"	16"	16"	8"	25"	19"	Straight	40 lbs.	None
113	Solid Steel	Steel	24"	17"	12"							Slanting	38 lbs.	Optional
612	Solid Steel	Steel	32"	22"	12"	30½"	21"	21"	12"	34½"	24½"	Straight	60 lbs.	None
712	Clear Glass, 3 Lts.	Steel	32"	22"	12"							Straight	65 lbs.	None
617	Solid Steel	Copper Steel	32"	22"	17"	30½"	21"	25½"	17"	34½"	24½"	Slanting	90 lbs.	Optional

Grade Line Chutes—Used where foundation wall is too low to receive foundation chute. Horizontal opening set level with lawn or walk. Door opens against building, protects it from flying fuel. Automatic lock releases from inside only. Frame is special steel section made to repel water; hinges of steel with brass hinge pins. Checkered steel, non-slip door supports sidewalk traffic.



Section of steel frame

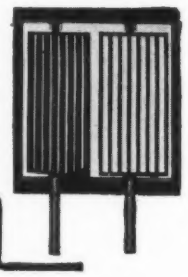
No.	A	B	C	D	E	F	G	H	I	J	K
10	19	19	14	19	24½	13	19	19	19	1¾	34½
1	21	26¼	14¾	19½	24½	13	24½	25¼	20	2½	34½
2	27	32¼	17¾	24¾	30½	15	30½	31¼	26	2½	42½

DONLEY INCINERATORS FOR RESIDENCES, APARTMENTS, HOSPITALS, ETC.

The Donley Incinerator consists of metal equipment supplied by us, and brick work installed as part of regular masonry contract. The latter consists of brick box in basement and chimney that also serves as chute for garage. Metal equipment includes fire door, ash door, grates, grate frame, crank, roof irons and chimney screen. Chimney support must be furnished by others. Receiving hopper doors are priced separately as number required for each incinerator varies.

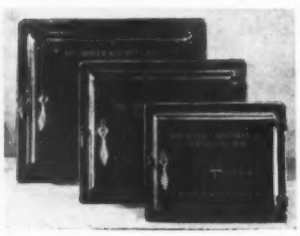
Operation—Is simple and calls, normally, for no added fuel. Where wastes are unusually moist (as fruit store) or where conditions may cause slow drying, a gas burner is recommended. (These burners are included on order at small extra cost.) Garbage, wrapped in paper, is dropped through receiving door to grates where it accumulates and dries. Once or twice a week, fire door is opened and match applied. After burning, grates are dumped and ashes, with unburnable trash, removed.

Grates Are Easy to Install and Dump—Heavy, staunch and trouble-free. They can be removed and replaced through the fire door. Removal will rarely be necessary. Grates rest on steel frame easily installed on a course of masonry of proper height without special fitting.



Made in four sizes: 15½" x 15½", 9½" x 20", 14¼" x 27¼" and 16" x 31¾".

Fire Doors for Donley Incinerators—These doors are substantial in design and weight. The doors are made with a sliding ventilator. The frames are made with anchoring straps. The one numbered 227 B is No. 227 with a baffle plate. The 304 B illustrated on page 11 is regularly supplied with baffle plates on the doors.

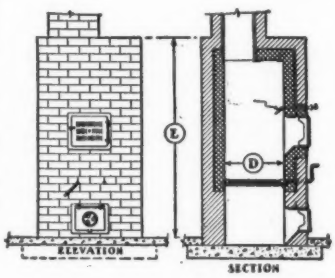


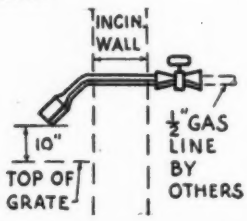
No.	Size In.	Ship. Wt. Lbs.
141	14x11	21
181	18x14	45
227	22x17	74
227B	22x17	100
304B	30x24	220

Sizes—The eight sizes of incinerators are adequate for nearly all conditions, homes, apartments, hospitals, schools, or stores. Details of larger sizes supplied on request. It is installed in building during construction.

Installation—Installation is made by the mason with the aid of details and directions which we furnish.

Gas Burner—Assembly consists of valve, pipe and burner. Hood protects burner from damage by articles entering incinerator from upper floors and prevents flame being extinguished by back drafts.





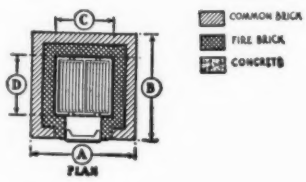
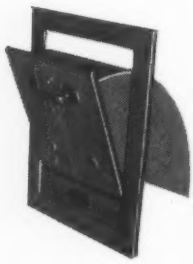


TABLE OF INCINERATOR SIZES, EQUIPMENT AND DATA

Incinerator No.	Recommended Use	INCINERATOR DIMENSIONS Outside Dimensions of Brickwork A	B	Inside of Combustion Chamber C	D	Height Outside E	Minimum Inside Size of Flue to Use	INCINERATOR EQUIPMENT Number and Size of Grates	Size of Fire Door	Size of Ash Door	Ship. Wt. Lbs.	Receiving Hopper Door Recommended	BRICK REQUIRED TO BUILD (Includ. 5% Allow. for Waste) Based on Wall Thickness	Height	Common Brick	Fire Brick
24	Res. 5 to 7 Rooms	36½"	36½"	18½"	18½"	6'6" to 7'2"	*11¼x11¼"	1-15½x15½"	14x11"	14"x11"	110	No. 1	9"	7'0"	550	340
35	Res. 5 to 10 Rooms	40¾"	41"	22¾"	23"	6'6" to 7'6"	*11¼x11¼"	2-9½x20"	14x11"	14"x11"	185	No. 1	9"	7'0"	675	380
45	Res. 8 to 14 Rooms Apts. to 18 Rooms	52¾"	36½"	34¾"	18½"	6'6" to 7'6"	*11¼x11¼" If 2 Fls. †15¾x15¾"	2-15½x15½"	14x11"	14"x11"	195	No. 1 or 2	9"	7'0"	765	430
68	Large Residences Apts. 18 to 40 Rooms	50¼"	48¼"	32¼"	30¼"	6'6" to 8'2"	†15¾x18¾"	2-14¼x27¼"	18x14"	14"x11"	278	No. 2	9"	8'0"	980	575
86	Apts. 40 to 80 Rooms Hosp. under 50 Beds Schools under 300 Students Small Stores under 6 Group	51¾"	52¾"	35¾"	34¾"	6'6" to 8'2"	†15¾x15¾" If 5 Fls. & over 20x20"	2-16x31¾"	18x14"	14"x11"	375	No. 2	9"	8'0"	1080	640
99	Apts. 80 to 120 Rooms Hosp. 50 to 90 Beds Schools 300-500 Students Small Stores 6-8 Group	65½"	48¼"	47½"	30¼"	6'6" to 8'2"	†15¾x15¾" If 5 Fls. & over 20x20"	3-14¼x27¼"	22x17"	14"x11"	470	No. 2	9"	8'0"	1160	682
127	Apts. 120 to 200 Rooms Hosp. 90 to 160 Beds Schools 500 to 800 Students Small Stores 8-12 Group	61"	79"	34"	52"	7'0" to 8'6"	Same as No. 99	3-16x31¾"	22x17"	2-14x11"	665	No. 2	13"	8'0"	2480	810
167	Apts. 160 to 300 Rms. Hosp. 160 to 240 Beds Schools 800 to 1200 Students Small Stores 12-18 Group	61"	96"	34"	69"	7'0" to 8'6"	20x20" If 5 Fls. & over 24x24"	4-16x31¾"	30x24"	2-14x11"	855	No. 2	13"	8'0"	2840	926

*Standard 13" x 13" flue lining (outside measure). †Standard 18" x 18" flue lining (outside measure). **Note on Capacity**—Cubic foot equals .809 bushels.

DONLEY RECEIVING HOPPER DOORS



The Receiving Hopper Doors are attractively designed and carefully fitted. Made of high grade aluminum, of substantial thickness to avoid warping.

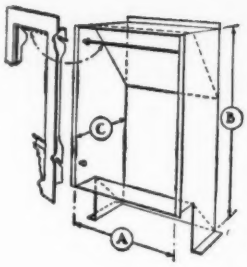
Donley Receiving Hopper Doors are of the flush type as illustrated and are made in three sizes. They are usually painted after installation to match the rest of the trim. Special finishes are available at a slight extra cost.

Heavy sheet metal hopper moves with the door, closing the opening to stack when door is opened.

The size of the receiving door is governed by size of flue. Many codes require smaller doors when two or more are installed on the same flue than when only one is used.

Where only one Door is required, use No. 1 Door with 13" x 13" flue; No. 2 Door with 18" x 18" flue.

Where two or more Doors are required, use No. 1 Doors with 13" x 13" flue; No. 1 or No. 2 Doors with 18" x 18" flue.



Installing Hopper Doors

Drawing left shows how the door frame fits into the wall sleeve. Wall sleeve is permanently fastened into the wall masonry. After plastering and finishing have been completed, door frame is inserted with notches fitting over rod at the top and pins at the bottom. Then the nuts on rod are tightened to hold frame securely to wall sleeve.

RECEIVING HOPPER DOOR DIMENSIONS

Hpr. Dr. No.	Wall Body (Steel)			Door and Frame (Cast Iron)			
				Frame Overall		Door Opening	
	A	B	C	Width	Height	Width	Height
1	8¾"	19"	7½"	10¾x16"		7⅛x 9¼"	
2	11"	23"	9"	13½x18½"		9½x10⅞"	

DONLEY INDUSTRIAL INCINERATOR

The Donley Industrial Incinerator is designed for use by any concern or institution where burnable wastes accumulate.

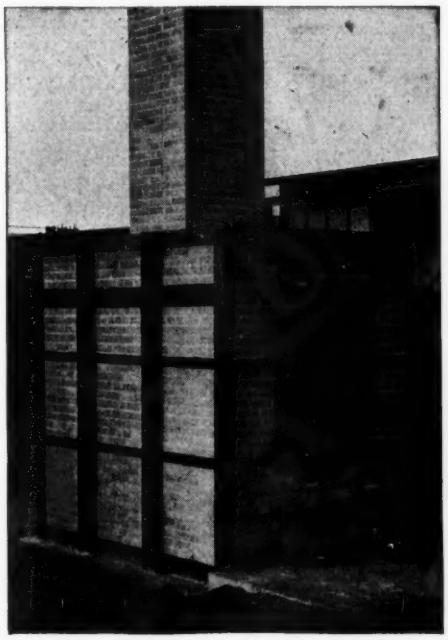
Factors to be considered in industrial incinerator design include capacity, combustion, efficiency, convenient feed, convenient removal of ash and soot, with access for ready repair or replacement of grates.

Satisfactory locations are as follows:

1. In the boiler room with access to the existing stack.
2. Against exterior of building with access to an existing stack.
3. Outdoors as a free standing unit with its own stack.

How to Get A Donley Incinerator

Incinerator building is essentially a masonry job. Donley Brothers Company supplies the doors, grates, and other metal parts. These have a long record of satisfactory incinerator use. They will also supply blue prints of representative designs when the problem has been outlined.



Donley Incinerator Grates

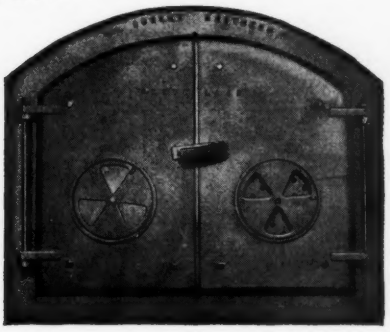
These are similar to the grates illustrated and described on the opposite page. Two, three, or four may be mounted parallel on a single frame. This makes for easy installation and insures correct alignment of bearings for easy dumping.

Where wastes burn with extreme heat such as finely divided materials fixed grates with heavier bars may be preferable. We will be glad to recommend and supply the proper type when the conditions are known.

Donley Incinerator Doors

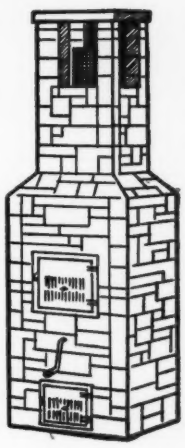
Large feed doors save labor in breaking up materials to be burned and speed work. The double feed door No. 304 B shown below has an opening 30" x 24". Frame has a depth of 3" and facing of 4". Draft control is provided by butterfly valves.

For smaller installations the largest size door shown on the opposite page may be used. Any of these doors may be used as ash doors.



Donley Spark Screens

These are placed at the top of the incinerator flue to protect property from flying sparks. Projections fit inside flue linings. Made of heavy wire for flue sizes 13" x 13", 18" x 18", 20" x 20", 22" x 22", and 24" x 24".



DONLEY GARDEN INCINERATOR

For homes or estates where it is desired to burn rubbish or garbage. Constructed with metal parts supplied by us and brick work furnished as a part of the masonry contract. Large fire door provides for charging the refuse as well as for lighting the fire. Illustration at the right shows recommended installation, including cap for the chimney which reduces entry of rainfall. Made for three sizes of incinerators, each unit consisting of doors, grates, grate supports, dumping crank, lintels and spark screen.

Order by No.	Brickwork Dimensions		Size of Fire Door	Size of Ash Door	Shipping Weight
	Inside	Outside			
1	18½"x18½"	36½"x36½"	18"x14"	14"x11"	114 lbs.
2	22¾"x23"	40¾"x41"	18"x14"	14"x11"	149 lbs.
3	34¾"x18½"	36½"x52¾"	18"x14"	14"x11"	150 lbs.

DONLEY GARBAGE RECEIVERS

Advantages—(1) Hidden from sight, only inconspicuous green top being visible. (2) Protected from frost. (3) No hammering of container to free contents. (4) Two-piece top prevents garbage falling between containers and outer shell. (5) Opened by foot lever. (6) Dogs cannot open it and spill the garbage. (7) Tight lid minimizes odors.

Construction—Outer shell made of 16-gauge copper-alloy steel strengthened by corrugations at top and bottom. Bottom open to permit drainage and stiffened by galvanized cross rods on which pail rests. Heavily painted with asphaltic paint.

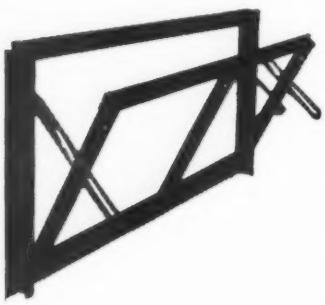
Container or pail made of copper alloy steel galvanized after fabrication. Ample clearance for lifting out pail which is slightly tapered to facilitate removal and return. Service lid made to close fit to larger cover which is hinged to outer shell and opened only when pail is removed. Made in 3 sizes, 10, 15 and 21-gal. capacity.

Order by No.	Cap. Gal.	Dia. of Lid	Overall Height
110	10	17"	22"
115	15	17"	26"
121	21	18"	28½"

DONLEY BASEMENT WINDOWS AND UTILITY WINDOWS

These windows meet conditions of easy installation, convenient use and maintenance, long service, and good weather protection.

Basement Windows No. 51, 52, 53 and Utility Window No. 153 are sizes approved by the Metal Window Institute and adopted in modular sizes to conform to the efforts on the American Standards Association on co-ordination of dimensions of building material and equipment.



BASEMENT WINDOWS

Donley Basement Windows are substantially made by welding ⅛-in. thick, hot rolled steel members. The outer frame is strengthened by 14-gauge formed steel channel at sides and top.

Side channels have unequal legs, the larger one anchoring in the masonry. The short legs on the inside of the sash permit plastering interior reveal when desired.

These windows are top opening and equipped with two-position stops. The ventilator is easily removed from inside by bringing the stud welded to the ventilator into line with the enlarged opening in the slot in the ventilator arm, releasing the frame from the arms.

No.	No. of Lights	Glass Size	Masonry Opening	Shipping Weight
51	2	15 x 12	32⅞ x 14⅝	18
52	2	15 x 16	32⅞ x 18⅝	21
53	2	15 x 20	32⅞ x 22⅝	24

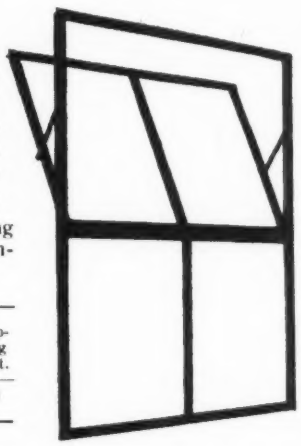
Ventilator Arm
Showing two position stop and hole for removing from ventilator.

The sash is putty glazed for weather tightness and provision is made for glazing clips to hold the glass securely.

UTILITY WINDOWS

A general purpose, metal framed window of sturdy construction and simple design. Widely used in shops, garages, store rooms, basements, recreation rooms, studios, and any place where a spacious, strongly built window is required.

Substantially made by welding ⅛-in. thick hot rolled steel members.

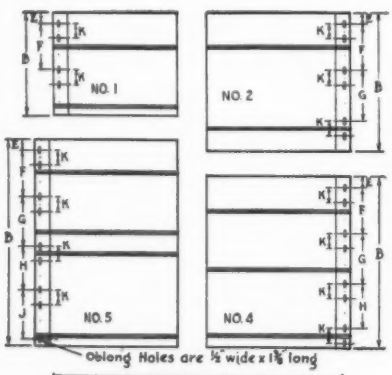


No.	No. of Lights	Glass Size	Masonry Opening	Shipping Wgt.
153	4	15x20	31⅞x42⅝	30

SCREENS FOR DONLEY WINDOWS

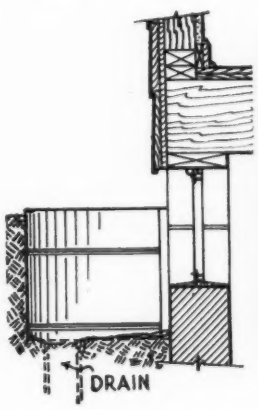
Close mesh bronze screens with metal frames are available, to fit any size window listed. Screen is complete, ready to install, no drilling or fitting is necessary. Simply insert two screws from inside and screen is securely fastened in place.

DONLEY STEEL AREA WALLS



In low set homes, with basement windows below grade, the Donley Steel Area Walls provide an enclosure that is economical, quick to install, and lasting. They are made of 16 gauge U. S. S. copper alloy steel protected with Tight Coated galvanized finish. They are arch-shaped, flanged and have ribs for increased strength.

Installation—Is simple. Just place the wall in the excavation and back-fill with earth (not cinders). Earth pressure holds the wall in place. So little surface is presented to frost that extension below the frost line is not necessary. The Area Wall may be fastened to the foundation by nailing through nail holes or by bolting through convenient slots both provided in the flanges. Anchor bolts, ⅜" in diameter, to be imbedded in foundation, are available in sets of four (galvanized) with nuts and washers.



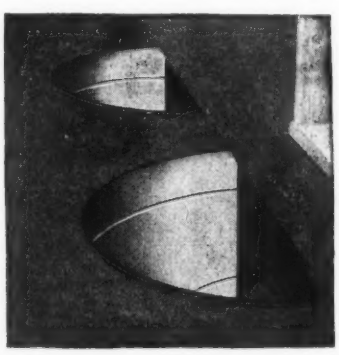


TABLE OF DIMENSIONS IN INCHES

	A	B	C	D	E	F	G	H	J	K	Ship. Wt.
No 1	38	17½	16	41	1¾	7¾	...	...	...	2½	25 lbs.
No. 2	38	23½	16	41	1¾	7¾	8⅝	...	...	2½	32 lbs.
No. 4	38	29	16	41	1¾	7¾	8⅝	7⅜	...	2½	401bs.
No. 5	38	35	16	41	1¾	7¾	8⅝	7⅜	8¼	2½	46 lbs.

DONLEY AREA GRATINGS—The Gratings are made of 1¼ x ¼ in. bars with cross bars of 1 x $\frac{3}{16}$ in. space 2 in. O. C. welded into one piece. Three supports on the grating hold it flush with top of Area Wall. Made to fit Area Walls No. 1, 2, 4 and 5. Weight, 18 lbs.

DONLEY PACKAGE RECEIVERS

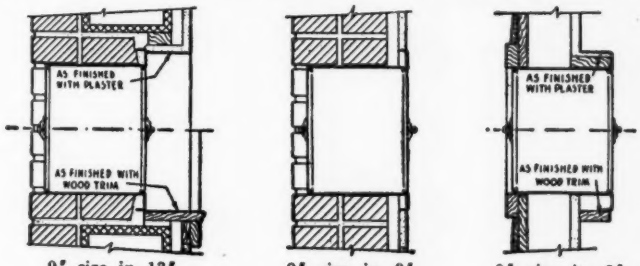
Made of heavy gauge steel, welded. Outer door insulated, inner door ventilated. Lock automatically. Shippe l complete ready for installation. Special apartment types available.

PACKAGE RECEIVER DIMENSIONS

No.	Body Width	Body Height	Over all front to back	Inside frame	Facing inside door, with hinge	Ship. wt., lbs.
1	13 7/8"	11 1/8"	9"	16 3/4" x 14"	On Left	20
2	13 7/8"	11 1/8"	9"	16 3/4" x 14"	On Right	20
3	13 7/8"	11 1/8"	6"	16 3/4" x 14"	Reversible	16
4	13 3/8"	11 1/8"	9"	16 3/4" x 14"	Reversible	20

Note: Return of flange on inside, 3/4 in. Nos. 1 and 2 have automatic lock; Nos. 3 and 4 no automatic lock.

Package Receiver Installed in Walls of Various Thicknesses



9" size in 13" Masonry Wall | 9" size in 9" Masonry Wall | 9" size in 6" Frame Wall

Apartment House Package Receiver—For installation in halls of apartments. Made in 2 parts with telescoping body to fit walls 5 to 8 in. thick. Chrome-plated brass latches. Installed in 7/8-in. wood frame, 14 1/2 x 11 1/2 in. built into wall.

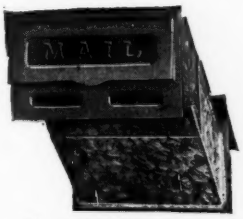
DONLEY MAIL RECEIVERS

Substantial outer doors and frames offer complete weather resistance. Donley Mail Receivers are made to last the full life of the building. Receivers have attractive bronze doors—galvanized metal chutes—steel inner doors and frames. Telescoping two-piece chute adapts receivers to various wall thicknesses.

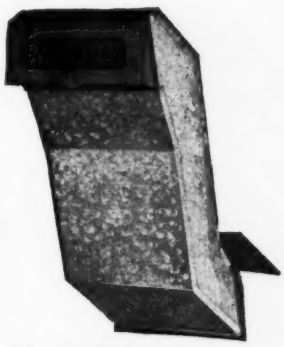
No.	For wall thickness	Mail opening Width	Mail opening Height	Shipping weight
1-F	5" to 9"	5"	2 1/2"	6 lbs.
1-B	9" to 14"	5"	2 1/2"	6 lbs.
2-F	5" to 9"	8 3/4"	2 1/2"	8 lbs.
2-B	9" to 14"	8 3/4"	2 1/2"	8 1/2 lbs.
3-F	5" to 9"	8 3/4"	2 1/2"	10 lbs.
3-B	9" to 14"	8 3/4"	2 1/2"	11 lbs.

F indicates for frame construction; B for brick.
When specified, name-card holder and electric push-button are furnished at small extra cost.

No. 1-F chute type, for narrow spaces.
No. 1-B, similar, except onger body and higher outer door frame for convenient brick installation.



No. 2-F chute type.
No. 2-B, similar, except longer body and higher outer door frame for convenient brick installation.

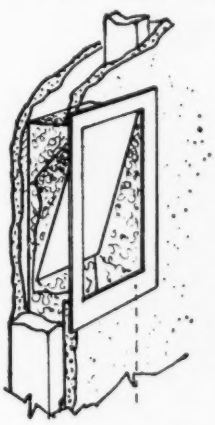


No. 3-F box type.
No. 3-B, similar, except longer body and higher outer door frame for convenient brick installation.

DONLEY LAUNDRY CHUTE DOORS

Inward opening, self-closing. Door and frame are a complete unit easily installed with concealed nailing. Inconspicuous but always ready for use. Frame projects only 1/4 in. from the wall. Wide inward flange for attachment to laundry chute eliminates sharp edges which might catch clothes. No. 1 and No. 2 are finished with gray priming coat. No. 10 and No. 11 are chromium plated.

Order by No.	Wall Opening Width	Wall Opening Height	Door Opening Width	Door Opening Height	Overall Size Width	Overall Size Height	Shipping Weight
1 or 10	9"	12"	8 1/8"	11"	11"	13 7/8"	6 lbs.
2 or 20	8"	11"	7"	10"	9"	12"	5 lbs.



DONLEY SEPTIC TANKS

Septic Tanks are designed to provide a safe, effective and economical sanitary system for cottages, camps and country homes. Entirely out of sight beneath the soil, free from odors, requires no chemicals or attention over long periods.

Made of 14 gauge copper-bearing steel with overall coating applied inside and out by dipping the entire tank in hot asphalt. Inlet and outlet connections made for pipe six inches in diameter which any mechanic can readily adapt to any other size of pipe used.

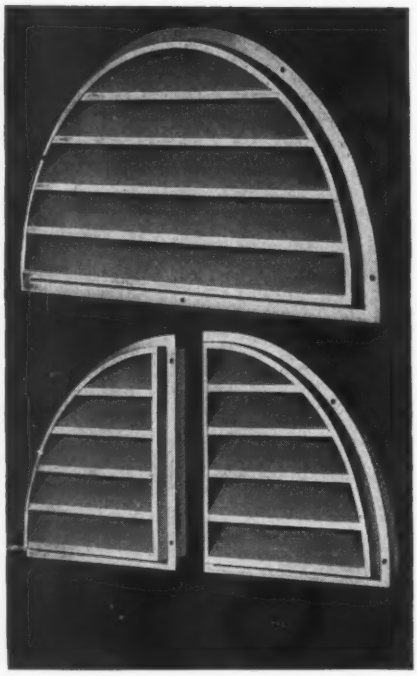
Grease interferes with septic action. To remove excess grease from the waste water use a Donley Grease Trap. It is placed in the line between sink and septic tank and should be accessible for cleaning with a minimum of trouble.

Construction is similar to the septic tank. It is thoroughly protected by a thick asphalt coating over all surfaces. Inlets and outlets have threaded connection for 2 in. standard pipe. Diameter of trap is 23 in., height 24 in.

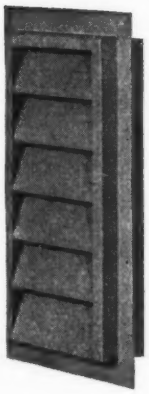
SEPTIC TANKS

Order by number	Working capacity in gallons	Number persons served Home	Factory	School
2	200	7	10	13
3	300	11	15	20
5	500	20	30	35
10	1000	50	60	60

DONLEY STEEL LOUVER ATTIC VENTILATORS (FLANGED)



Suggested attic ventilation in 40° latitude is 12½ sq. in. per 100 sq. ft. of attic floor space in each of the opposite openings.



For attic ventilation, Donley Steel Ventilators are durable and easy to install. Because they are standardized in sizes and made in quantities on special machinery the cost is surprisingly low. These ready made, substantial louver ventilators reduce building costs and decrease construction time. Their generous free area gives maximum free air flow through the attic space—much in excess of wood vents of equal size. No wood trim is needed with Donley Flanged Ventilators.

Donley Attic Ventilators are made of 20-gauge steel electrically welded and painted with high grade paint. Louvers are sloped 33° from the vertical and have a bend at the top to increase repellence of rain. Screen on back excludes insects, etc. Packed two to a carton.

Half and Quarter Circle Steel Louver Ventilators—These ventilators fill the need where design or preference calls for other than rectangular shaped ventilators. The half circle makes a handsome appearance in the gable. The quarter circles are used in pairs on either side of a chimney. Construction and installation same as rectangular type. Sizes shown in table below.

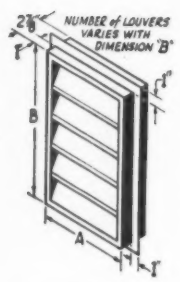
Installation of Donley Flanged Steel Louver Ventilators

In Wood Construction—It is only necessary to cut an opening of the correct size in the sheathing. Then nail the flange to the sheathing through holes provided and butt siding against the frame of the ventilator which projects 1 in. beyond sheathing.

In Brick or Stone Veneer Construction—Cut opening in sheathing as above. Around the opening nail strips of sufficient thickness to fill space between sheathing and veneer and bring the flange to the back edge of the veneer. Then nail ventilator to strips and lay the veneer up to the flange. Ventilator is recessed 3 in. No wood trim is needed but ventilator should be caulked on all sides.

In Brick Construction—Ventilator is recessed 3 in., the flange fitting between mortar joints. Again no trim is needed but ventilator should be caulked on all sides.

TABLE OF DIMENSIONS



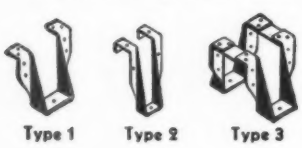
No.	Wall Opening Width A	Wall Opening Height B	No. of Louvers	Free Area in Sq. In.	Ship. Wt. Carton of 2
811	8 1/8"	11 1/4"	4	23	8½ lbs.
816	8 1/8"	16 1/4"	6	42	11½ lbs.
824	8 1/8"	24"	9	70	18 lbs.
1214	12 5/8"	13 11/16"	5	56	13 lbs.
1219	12 5/8"	18 11/16"	7	84	17 lbs.
1224	12 5/8"	24"	9	115	21 lbs.
1230	12 5/8"	30"	11	144	25 lbs.
1824	18 1/8"	24"	8	148	29 lbs.
1830	18 1/8"	30"	10	190	35 lbs.
1836	18 1/8"	35 3/4"	12	234	41 lbs.
28 15 HC	28 1/8"	15 1/4"	5	116	25 lbs.
14 15 QC	14 1/8"	15 1/4"	5	56	15 lbs.
16 16(roof)	16"	15½"	.....	32	12 lbs.

1—Sheathing
2—Building Paper
3—Siding

No. 816 in Frame Wall

No. 816 in Brick Wall

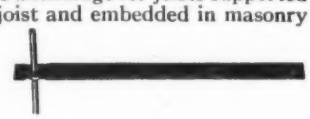
DONLEY JOIST HANGERS AND ANCHORS



Type 1 Type 2 Type 3

Joist Hangers—A strong, safe, economical method of joining ends of joists or beams to supporting members. Available in single and double types. Complete range of sizes.

Joist Anchors—Provide secure anchorage for joists supported by brick walls. Nailed to top of joist and embedded in masonry with vertical crossrod. Sizes: 1 x 3/16 x 14 in.; 1 x 3/16 x 18 in.; 1¼ x ¼ x 18 in.; 1 x 3/16 x 40 in.; 1¼ x ¼ x 55 in.



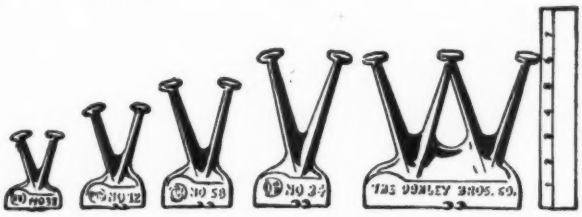
Wall Plate Anchors—For anchoring sill to foundation and roof plate to brick wall. Made from ½-in. rod, 12 in. and 18 in. long with 2-in. angle at one end and 2-in. thread at other. Furnished with nut and washer.

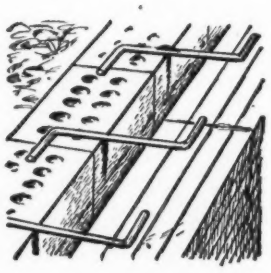
Stone Anchors—For attaching stone to backup wall. Made of flat steel 3/16x1 in. with reversed offsets at the two ends. Hot galvanized. Standard length 6 5/16, 8 5/16, 10 5/16, 12 5/16 in.

Door Buck Anchors—For securing jambs or rough bucks to masonry walls. Made of 2x1/16-in. flat steel, 12 in. long with 2-in. turned up end perforated for nailing. Perforations in horizontal arm engage mortar in joint. Space 2 ft. apart.

DONLEY CONCRETE INSERTS

Anchored in concrete ceilings or walls they provide dependable support for any suspended fixtures. Made of malleable iron. Exposed face has a slot for bolt head. Design of insert and anchorage in concrete was tested to develop full strength of bolt. Made in 5 sizes for ⅜, ½, ⅝, and ¾-in. bolts, with safe loads of 1200, 2300, 3300 and 4900 lbs. respectively.

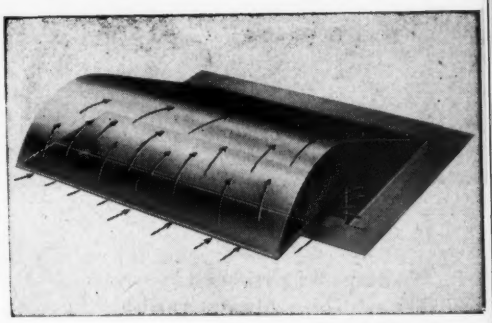




CAVITY WALL TIES

For hollow wall masonry construction. Made of ¼-in. galvanized steel 6 in. long with a 2½-in. right angle bend at each end. Packed 200 to a carton, weighing 33 lbs.

DONLEY ROOF VENTILATORS



For hip roofs, where gable type cannot be used, this ventilator affords ventilation for the attic space. Over-hanging top provides greater weather protection. This ventilator has a free area of 32 sq. in. for air passage.

It is designed for roofs with a $\frac{5}{12}$ slope or greater and fits a roof opening 16″ x 10″ high. Ventilator is made of 20-gauge steel (except top which is 16-gauge), electrically welded and painted two coats with high quality paint. Screen covers the opening.

In installing, flanges of ventilator are nailed to the roof boards around the 16″ x 10″ opening. Roof paper and roof shingle cover the flanges on all sides, fitting under the counter flashing at the front edge.

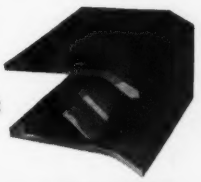
DONLEY BRICK VENTILATORS

These ventilators are designed to take the place of one, two or three bricks. There are two styles (a) Louver (b) Bar.

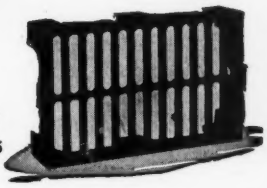
No. 82, Louver Type, of cast aluminum, 8″ x 2½″ x 2¾″ deep exclusive of over-hang. Two sloping baffles and a low one at rear keep out rain. Lip at front projects ¾″ beyond face of masonry so that drippings do not strike area just beneath with the risk of spalling. Floor is sloped to assist drainage and insect screen is placed at back. Free area 8.6 sq. in.

No. 85 and No. 125, Bar Type, size 8″ x 5″ and 12″ x 5″. Available in cast iron or cast aluminum. Insect screen supplied at slight extra cost. Free area 48%.

No. 82



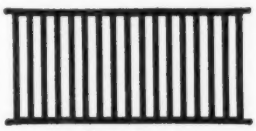
No. 82



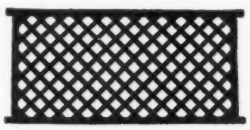
No. 85 and No. 125

DONLEY FOUNDATION VENTILATORS

Donley Ventilators provide access of fresh air under porches, buildings without basements, attics, closed lofts, vegetable rooms, soffit spaces, etc. Supplied with insect screen at extra cost.



Bar Type Ventilator



Diagonal Grid Ventilator

Continuously Open Ventilators — Two styles, bar type and diagonal grid both of cast iron. The bar type has vertical bars $\frac{11}{16}$ of an inch apart. The diagonal type has $\frac{11}{16}$-inch square openings. Made in six sizes as shown in table below.

Bar Type		Diagonal Type		Weight
No.	Size	No.	Size	Per doz.
4	8″ x 8″	23	8″ x 8″	36 lbs.
5	12″ x 8″	24	12″ x 8″	52 lbs.
6	16″ x 8″	25	16″ x 8″	60 lbs.
9	12″ x 12″	28	12″ x 12″	118 lbs.
10	18″ x 12″	29	18″ x 12″	134 lbs.
11	24″ x 12″	30	24″ x 12″	178 lbs.

Adjustable Ventilators—Have two plates one of which is moved by means of a knob to close or open the ventilator. Has 30% open area. Especially useful in vegetable rooms and to provide a controlled air intake into homes with air-tight construction. Made of rustless cast aluminum in three sizes—No. 86—8 x 5¾ in., No. 112—12 x 7¾ in., No. 116—16 x 7¾ in. Insect screen between plates at extra cost.

Adjustable Bar Type

METAL BUILDING CORNERS

INSIDE AND OUTSIDE

Donley Galvanized Building Corners eliminate the need of corner boards which require extreme accuracy in fitting siding and eliminate mitering of the siding. Just saw the ends square and the metal corners furnish a neat, uniform joint. Made in sizes for various widths of siding, they come packed 250 to a carton. (Specify whether inside or outside corners.)

No.	For Siding	Size Over All	Weight per 100
1	6 x ½″	5½″	10 lbs.
2	8 x ½″	7½″	15 lbs.
2½	8 x ⅝″	7½″	15 lbs.
3	8 x ¾″	7½″	16 lbs.
4	10 x ½″	9½″	18 lbs.
4½	10 x ⅝″	9½″	19 lbs.
5	10 x ¾″	9½″	20 lbs.

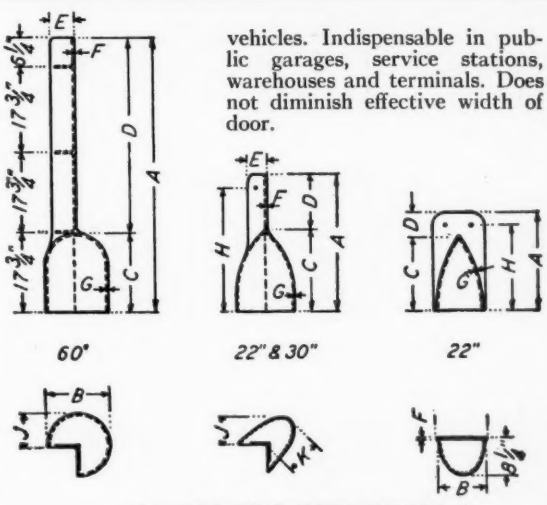
DONLEY WHEEL GUARDS

Made for corners and jambs. Cast iron, heavy enough to deflect any wheel and prevent damage by the hub. Two ½ x 8 in. bolts furnished with each guard.

Guard should be set in cement drive about 1 in. to provide additional anchorage.

Corner Guards—Made in three sizes, 22, 30 and 60 in. in height. Sixty-inch type protects against projecting truck bodies or loads.

Jam Guards—Bolt against flat surface of the door jamb giving positive clearance in entrance and exit of vehicles. Indispensable in public garages, service stations, warehouses and terminals. Does not diminish effective width of door.



CORNER & JAMB WHEEL GUARDS

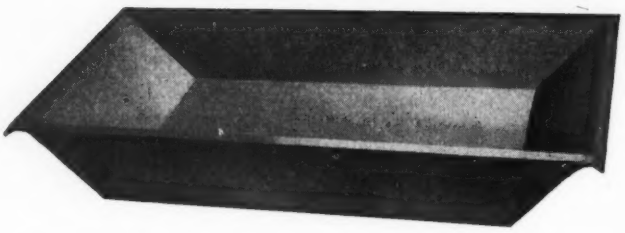
TABLE OF DIMENSIONS

Size	A	B	C	D	E	F	G	H	J	K
60″	59½	13½	17¼	42¼	5⅜	⅜	½	.....	7¼	....
30″	30	.....	18	12	4	⅜	½	27	6	6¼
22″	22	.....	18	4	4	⅜	½	18¾	6	6¼
Jamb	21½	10	16	5½	....	⅜	⅜	18¾	....	....

DONLEY DEVICES
Complete the Home

DONLEY STEEL MORTAR BOXES

Water Tight—Easy to Clean. These sturdy Donley Steel Mortar Boxes do not leak, shrink, swell or become water-logged as do common wooden boxes. They aid accurate mixing of the mortar or plaster, since water is retained instead of being absorbed by the wood or leaking out through cracks.



Order by No.	Capacity Cu. Ft.	Dimensions, Inches			Weight Lbs.
		Width	Length	Depth	
31	31	42	110	12	200
22	22	42	86	12	150
14	14	36	68	12	110
9	9	28	70	10	75
6	6	24	53	9	60

Note—Lots of three or more mortar boxes nested, take minimum freight rate.

Best plastering results depend upon thorough cleaning of past mixes from the box. The Donley Mortar Box has a smooth interior, free from rivet heads or projections, therefore thorough cleaning is easy. Contractors report that plaster does not "go dead" quickly when mixed in these steel boxes.

In cold weather the box can be set on brick or tile supports and a fire built beneath to heat the mix. For more accurate temperature control, place a smaller box within a larger one and resting on bricks or blocks. Put water in outer box and use the inner one for mixing. This will keep the mixture warm but well below the boiling point.

Donley Steel Mortar Boxes are made of one piece 14-gauge steel (except Nos. 6 and 9, 16-gauge) securely welded at the joints and reinforced at the top with hot rolled steel angle. They are strong and well made, but are light enough to handle easily. Inverted, they make a handy temporary roof to protect sacks of cement or plaster. They nest conveniently for storage and when shipped in quantities of three or more, obtain minimum freight costs.

DONLEY STEEL MORTAR TUBS

Popular for small jobs such as tile setting and plaster repairs, where they often take the place of a mortar board. Convenient wherever small batches are mixed. Do not shrink, warp, swell or leak. Size 23" x 30" x 6". Top curved for easy handling. Bottom flat for steadiness. Shipping weight 18 lbs.

DONLEY STEEL PUTTY BOXES

Used for soaking lime over night. On large jobs two or more may be used for desired capacity. Depth 23", width 26" and length 96" gives capacity of 33 cu. ft. Made of 16-gauge steel, reinforced with steel angles at the top. **Shipping weight 166 lbs.**

1895 **GUARANTEE** **1947**

Every Donley Device is guaranteed to be exactly as described and illustrated.

Every Donley Device is guaranteed to give you the performance and service you have a right to expect.

Any Donley Device that for any reason whatever does not satisfy you, may be returned for credit. We will then be glad to exchange it for exactly what you want, or we will return your money.

Signed
THE DONLEY BROTHERS CO.

THE DONLEY BROTHERS COMPANY
13928 MILES AVENUE • CLEVELAND, OHIO

Metal Products

Description	Suggested Stock
( ) Base screeds—½" grounds—in plaster walls—10' lengths	1 crate each
( ) Solid wing corner beads—small nose	1 crate
( ) Solid wing corner beads—bull nose (furnished in 7-8-9-10 and 12' lengths—500 lin. ft. per crate) stock 7' and 8' lengths)	1 crate
"Tin" or "Terne" coated steel:	
( ) Valley flashing—10" and 14" wide—paint both sides—furnished in 50' rolls..	2 roll ea. size
( ) Roofing—flat plates for porch or deck roofs—size 20x28"—25 lb. coating—packed 112 sheets per box—(approx. 400 sq. ft. coverage)	2 boxes
( ) Gutter or eaves trough hangers (strap type) for 3", 4", or 5" eaves trough.	36 of each size
( ) Gutter or eaves trough hangers—malleable adjustable shanks—3", 4", or 5" eaves trough	36 of each size
( ) Leader clamps for 3" and 4" dia. leaders	
( ) Strap type	50 of each size
( ) Clamp type	36 of each size
( ) Ornamental type	24 of each size
( ) "Blued" stove pipe—28 gauge 3", 4", 5", 6" diameters—2' lengths—100 pcs. per box—(stock 3", 4", and 5")	1 box each
( ) Corrugated 90° elbow—each size	24
( ) Adjustable sectional elbows.	24
( ) Flue size reducers—6" to 5"—6" to 4"—6" to 3"	12 each size
( ) Dampers—for stove pipe..	12 each size
( ) Stove pipe collars	12 each size
Contractors' metal products equipment items:	
( ) Mortar boxes (assorted sizes)	6 each
( ) Mortar tubs	24 each
( ) Mortar hods	12 each
( ) Scaffold brackets	48 each
( ) Ladder brackets	48 each
( ) Roofing brackets	48 each
( ) Wheel barrows	6 each
( ) Water pails (galvanized) 8-10 qts.	24 each
( ) Mortar pails (galvanized) standard	12 each
( ) Hoisting pulleys (well wheels)	12 each
( ) Hoisting devices (block and fall)	6 sets
( ) "Crow" bars —6', 7', 8'...	2 each
( ) "Pry" or wrecking bars—18", 24", 30" (For hoes, spades, shovels, and mechanics' tools, etc., refer to Section XI.)	6 each
Household metal items:	
( ) Coal hods	6 each
( ) Fire baskets	6 each
( ) Andiron sets	6 each

Metal Products—for special order—not stock:

Description

Ornamental products

( ) Wrought iron railing for stairs—porch rails, etc.
( ) Weathervanes
( ) Lamp posts
( ) Fence posts and gates
( ) Flag poles

Structural products

( ) "I" beams for girders, etc.
( ) Channel for girders, etc.
( ) "T" section for girders, etc.
( ) Steel fabricated framing—plain
( ) Steel fabricated framing—with nail grooves
( ) Steel junior beams
( ) Steel partition studs
( ) Steel partition plates
( ) Steel partition jambs

Heating and furnace products

(See Section 10 for Related Items)

( ) Furnace jackets
( ) Furnace bonnets
( ) Warm air ducts—horizontal
( ) Warm air wall stacks—vertical
( ) Warm air wall stacks fittings
( ) Warm air boots—offsets, etc.
( ) Warm air floor registers
( ) Warm air ceiling registers
( ) Warm air wall or base board registers

Metal siding, roofing, and misc. products

(See Section 8 for Related Items)

( ) Metal roll roofing
( ) "V" crimp roofing
( ) Brick face siding
( ) Rock face siding
( ) Beaded siding
( ) Skylights
( ) Ornamental metal ceiling
( ) Ornamental metal cornice
( ) Steel wall tile
( ) Rotary roof ventilators

One of the quantity products on any home consists of gutters, "eaves troughs" and leaders—"down spouts" or "conductor pipe".

Gutters or "eaves troughs" either "half round", "box", or "ogee" type, each of these is furnished in several sizes; the most common 3½" to 5".

For each size and pattern—hangers, either twisted wire—galvanized strap, or malleable adjustable hangers of corresponding sizes, are required.

In addition, for each size and pattern—inside and outside miter sections—end caps—and outlets, are needed.

To further complicate inventories, both galvanized and copper troughs and fittings are regularly supplied in two types of connecting joints:

( ) The "lap joint"—(which is soldered on the job)
( ) The "slip joint"—Which eliminates solder)
( ) Leaders, "down spouts", or conductor pipe is supplied in "plain round", "round corrugated", and "square corrugated"—in both galvanized iron and copper.

Metal Products

( ) "Round" types come in 2", 3", 4", 5", and 6" diameters; "square" types, 1¾x2¼"—2⅜x3¼"—2¾x4¼", etc.—with each of these, appropriate fittings; i.e., "ells", "sweeps", and "shoes" are required for each size and pattern—and either in galvanized iron or copper.

( ) Ornamental conductor "heads" and ornamental straps; also conductor fasteners—either round, corrugated, or square—of tinned malleable iron are required.

To prevent clogging from leaves, etc., conductors are fitted with wire strainers—either copper or galvanized—either square or round—in several sizes.

Dealer's procedure:—in view of the many alternatives, the simplest method of handling appears to be a display board on which the several sizes of trough—conductor pipe—and fittings can be attractively mounted.

Any plan can be quickly analyzed to find the amounts and sizes required—and after the pattern and metal have been selected, the required units can be ordered as a "package" shipment from the approved sheet metal distributor.

When preparing the "take off" sheet, care should be given to insure that either "lap joint" or "slip joint" is ordered throughout; likewise the sizes of fittings—number of inside and outside miters—end caps—outlets, etc.

Under "technical Data for Salesmen", typical instructions for "take off" are given in detail.

Stock or inventory items—Interior Decorative Metal Construction Products:—

Metal Mouldings and Trim—

Metal mouldings—these are supplied in several types and depending on available sources or the pattern now in use in the counter cabinet Millwork Department—should determine which style and material should become "stock".

*Decorative mouldings are made of either—

( ) Rolled shaped steel—stainless
( ) Rolled shaped steel—chromium plated
( ) Rolled shaped steel—"snap on" mouldings (either chromium plate or stainless)
( ) Rolled aluminum
( ) Extruded aluminum

Metal "wood core" mouldings—either brass, aluminum, stainless, or chromium plate plate members—where thin metal shapped patterns are mechanically embedded and secured to a wooden core filler.

*Zinc mouldings used primarily for exterior application on existing homes where asbestos siding or asphalt siding shingles are applied over old walls. They are supplied in two patterns—

( ) Inside and outside corners
( ) Frame strips for doors and windows

Interior decorative mouldings are designed for many applications among which are:

( ) "Cap" mold for covering typ edges of board products.
( ) Inside and outside corners—for walls—sink back splash, etc.
( ) "Divider" or joint strips where two sheets are joined.
( ) Fabricated rolled sink rims to effect seal between sink and counter top.
( ) Counter edge—plain or "bull nose" for edge finish on linoleum tops.
( ) Stair tread nosings.
( ) Stair tread coves.
( ) Recessed mouldings which provide space for decorative matching linoleum strip inserts.
( ) Bathtub edge.

Because of these many variations and also by reason that they are not an immediate requirement, the logical procedure would appear to be the mounting of the various members on a display board; and, after the customer has expressed his preference as to style and type of metal, to analyze the plan and prepare an order to the distributor.

In doing the above, resolve plan lengths into total linear feet of each pattern and write order to nearest larger number of stock lengths—to allow for cutting and fitting waste—and also because very short ends are seldom usable.

However, for small jobs or "over counter" sales, a limited stock of one type or pattern may well be kept as an inventory item. This could consist of:

( ) Standard cap moulding.	8'0 or 12'0 lengths	20 pcs.
( ) Joint strip—or divider..	12'0 lengths	20 pcs.
( ) Cove	12'0 lengths	20 pcs.
( ) Inside corner	12'0 lengths	20 pcs.
( ) Outside corner	12'0 lengths	20 pcs.
( ) Counter edge	12'0 lengths	20 pcs.
( ) Stair tread moulding...	12'0 lengths	20 pcs.

Packaging by manufacturers in long cardboard or fiber tubes affords convenience in handling—storing—and protection of stock.

Misc. Steel Structural Products for sectional samples and display:—

(See Windows, Door and Millwork Dept. Section 3)

Description	Sectional Samples	Pictures Catalogs
( ) Casement windows—steel	v	v
( ) Casement windows—bronze	v	v
( ) Casement windows—aluminum	v	v
( ) Double hung windows—aluminum...	v	v
( ) "Kalamein" firedoors and frames—"Terne"	-	v
( ) Sectional stair units—steel.....	v	v
( ) Screen door guards—steel.....	v	v
( ) Screen door guards—bronze.....	v	v
( ) Screen door guards—aluminum.....	v	v
( ) Store front sections—aluminum.....	v	v

Metal Products for Farms:—(See Farm Dept. Section 12.)

Minimum Inventory Products for functional house maintenance: — (See Hardware Section 11 For Related Items.)

Description	Floor Samples	Suggested Stock
( ) Ash cans—Assorted sizes.....	1	12
( ) Garbage cans—Assorted sizes....	1	12
( ) Garbage pails—Assorted sizes....	1	12
( ) Rubbish baskets—Assorted sizes..	1	12
( ) Rubbish burners—Assorted sizes..	1	12
( ) Waste baskets—Assorted sizes....	1	12
( ) Watering cans—Assorted sizes....	1	12
( ) Hose reels	1	6
( ) Fire shovels	1	12
( ) Mop—buckets	1	12
( ) Grating for areaways (to order)..	-	-
( ) Barbecue grates and fixtures (portable)	1	6
( ) Barbecue grates and fixtures (built-in)	1	(to order)
( ) Metal step ladders.....	1	6
Metal Furniture and Misc. Items:—		
Description		
( ) Bridge tables—(unit)	1	6
( ) Bridge table sets with matching chairs	1	3
( ) Stools—for snack bars.....	1	10
( ) Chairs, settees, and tables for porches	1	4 ea.
( ) Chairs, settees, and tables for recreation rooms	1	3 ea.
( ) Chairs, settees, and tables for gardens	1	3 ea.
( ) Serving trays—(assorted sizes)..	3	12 ea.
( ) Go-carts	1	3
( ) Shopping carts	1	4
( ) Vegetable storage bins.....	1	6

Items Asked For But Not Normally Stocked

_____

_____

_____

_____

_____

Allocating Display Space:—While minimum inventories and floor samples are indicated, dealer display space must remain the deciding factor. If it is insufficient, pictures, pamphlets, catalogs, etc., will "bridge the gap" until the volume necessitates expansion.

Because the many related items "over-lap", all walls, ceilings, windows, counters and low partition display booths should be carefully pre-planned—with regard to location and amount of display space that can logically be allotted to each division.

Tips for Salesmen:—

Salesman's opportunity—The salesman, who is given the opportunity of analyzing the customer's requirements and then guiding him to make the proper selections, is in an enviable position (provided he has studied the cur-

rently available stocks to the end that he knows which items "tie in" with others.

Sell the whole job—Because the Hardware Section (refer to 11) and likewise Sections 14, 15, 5, 6 are so closely related (actually, at several points overlap)—by developing a "check list" of all metal products and also related items, the sales will become "higher—wider—and thicker", which should be every salesmen's objective.

Examples and sales tips—In the following paragraphs both sales and estimating procedures are described for several items. These are intended to be indicators of what "can be done" to really serve a customer—merit his confidence—ensure his satisfaction.

The entire line of products should be developed in a similar manner.

Estimating Plans—In estimating plans for metal products, check the plans with extreme care—and list the dimensions (with description) in duplicate. Keep one copy until job is completed.

Begin with the foundation and "work up"—because the foundation items will be needed first; for example—set up a simple form for your "take off"—

Name of Customer **Job Location** **Date** **Est. No.**

Item	Size	Amt.	Price Std.	Price Deluxe
Lally columns				
Angle irons				
Basement sash				
Clean-out door				
Cellar entrance				
Dome dampers				
Ash dump				

Item	Size	Amt.	Price Std.	Price Deluxe
Stirrups				
"I" beams				
Re-enforcement bars				
Re-enforcement woven mesh				
Bell traps				
Package receivers				
etc., etc.				

By following this method, several advantages will be gained:

YOU know the "whole job" requirements, the way to sell the "whole job" is simplified.

After you have listed the requirements once, you can anticipate the customer's needs without further reference to the plan.

All listings can be priced—extended and totaled (on the preliminary estimate)—with two prices as easily as one.

ALWAYS figure both "standard" and "deluxe" prices and show your customer why it is a definite saving for him to buy the quality grade (particularly when it is intended for his own home).

Here are a few reasons or "sales pointers" which apply to any type of product on any new home or modernization job.

Labor costs (which are one-half or more of the total) ARE THE SAME whether the standard or deluxe materials are used.

Labor lasts longer when it is used with quality products.

The slight difference in material cost (particularly if financed on a mortgage) will only amount to a few pennies per month.

The durability and quality appeal in case of re-sale—the freedom from expensive maintenance over a period of years—and the enhanced value—all of these definitely tend to make quality both desirable and economical.

Set up all prices for "standard" and "deluxe" so that a customer can elect his choice—(this is the "split decision" method and tactfully used, it will appreciably increase the sales dollar volume).

Constantly remind him that, because labor cost is so important and normally—quality items are installed for the same (or sometimes lower) cost than so-called "cheap items," "best" results are obtained by selecting the "best".

Technical Data for Salesmen — To estimate eaves-troughs and down-spouts, proceed as follows:—

1. Measure or scale plan elevations—and arrive at total lineal feet of eaves-trough and down-spout for each size (as porch sizes may be smaller than main roof).
2. Check plan to find number of leader outlets, end caps, inside and outside corner miters, elbows, shoes, funnels and strainers.
3. Resolve eaves-trough and leader total lengths into 10 ft. sections; for example—if the plan measurements result in 64 lin. ft., order seven 10 ft. pcs. or 70 lin. ft., etc.
4. To find number of eaves-trough hangers and down-spout hooks or clamps, figure one to each three lineal feet.
5. Prepare list and estimate in two price columns; one for "galvanized" and the other for "copper".

To estimate decorative moldings for kitchens, bathrooms, etc., proceed as follows:—

1. List plan dimensions for each type of member and find total lineal feet of cap mold—joint mold—cove—bullnose—inside and outside corners and check sink size carefully to determine correct pre-fabricated sink rim size.
2. Convert total linear feet of each pattern into nearest larger number of stock lengths (these may be 8'9, 10'0 or 12'0 depending on dealer's stock).
3. Determine purpose—whether molding trim is to be used with wall board (and if so, what thickness)—linoleum—or "linowall"—and select proper style as recesses vary.
4. If two types, one of ordinary commercial quality and one "deluxe" is sold by the dealer, list both in two separate columns on the estimate.

Estimating Procedure—Ornamental Metal Ceilings—

1. Furring—since all metal ceiling should be applied on furring, certain rules for estimating quantities and prices seem indicated—briefly, they are—
2. Furring—nominal size⅞"x1¼" applied on 12" centers (start from center of ceiling)—at right angles to existing floor joists—plus two complete perimeters for cornice; for example:—

Ceiling 24'x30" on 12" c.c. would require:

25 pcs.—30 ft. or	750 L.F.
Perimeter double	216 L.F.
Total net	966 L.F.
Add for cutting waste 10%	97 L.F.
Total furring	1,063 L.F.

This approximates 147 l.f. per 100 sq. ft.—therefore—a safe rule for arriving at furring is to allow 150 l.f. per 100 sq. ft.

3. Field or ceiling panels—usually furnished in 12" multiples. Start from center both ways—sides and ends, and arrive at even feet—in this case 24'x30' deduct the width of the cornice (approximately 6") which will reduce the actual "field" to 23'x29'.
4. Molded filler—this unit is used to "fill in" between the cornice (which should follow the wall line) and the "field". It can be cut to fit without disturbing the symmetrical appearance of the ceiling even tho the walls are not parallel.
5. Complete the estimate—this ceiling (24'x30') would require:
   1. 1,080 l.f. of ¾x1¼" furring ..... 1,100 l.f.
   2. 638—12" ceiling tile (or their equivalent in 12" multiples) ..... 650 s.f.
   3. 108 l.f. of cornice (allow for miters) .... 110 l.f.
   4. 110 l.f. of "molded filler"—approx. 8" wide—to allow for fitting—approx.... 80 s.f.
   5. Nails for furring—½ lb. per 100 sq. ft. (allow 1 lb. 8d cement coated nails per 100 sq. ft. or ..... 8 lbs.
   6. Nails for ceiling—filler and cornice—(allow 1 lb. of 1" or 16 gauge nails per 100 sq. ft.) or ..... 8 lbs.

Any other size ceiling may be figured in a similar manner.

Increasing the Dollar Sales Volume:—In the sale of metal products and related items, much can be done to "boost" sales by eye appeal. Remember customers "buy with their eyes".

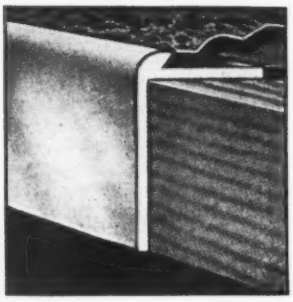
In arranging display boards, arrange the samples so that "standard"—"super"—and "deluxe" quality items are together or "side by side"—and let the customer decide.

Promote and encourage "eye appeal" by carefully checking all display items to be certain that they are spotless and attractive—(frequent replacements may be required to do this but it will prove itself to be the most economic form of sales promotion).

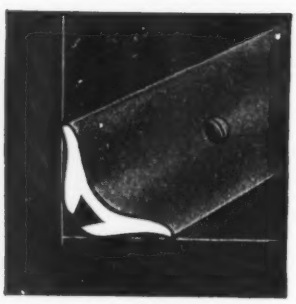
Use the deferred payment plan—because most house purchasers of metal products will be permanently affixed and includable in the mortgage as part of building material costs, the salesman should "bear down" on the relative slight difference in monthly payments over a period of years.

Metal Products

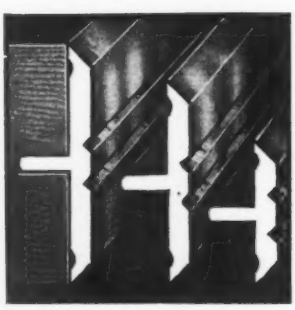
Metal Mouldings



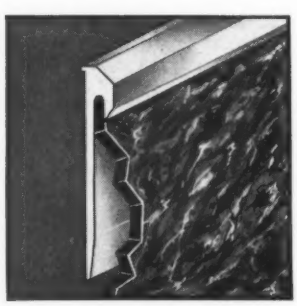
Underslung Face Nosings—To be applied on table, sink, desk and shelf tops, etc., before cover material is installed. Comes in various sizes for various gage material.



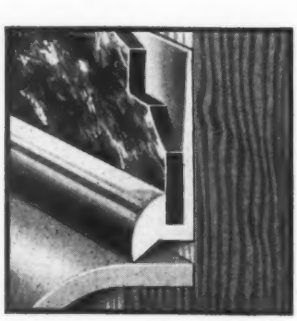
Cove—Used to finish or cover corner joint after covering is applied on sink tops, inside corners, etc.



Tee Counter Nosing—Used to finish table and counter tops, etc. Installed by cutting slot in wood and driving nosing into slot.



Cap Moulding—To be used in conjunction with wall board, plywood, linoleum, etc. A trim for the top or end of material.

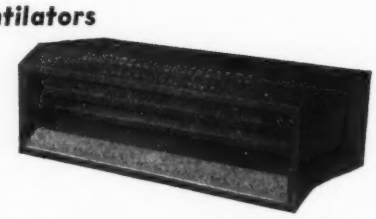


Bath Tub Edge—Used to hold tile board or other covering materials around bath tubs, window and door casings, etc.

Garbage Receivers

Garbage receivers of the type illustrated here have many distinct advantages. They are sunk in the ground and thereby hidden from sight, with only the inconspicuous top being visible. Tight lid minimizes odors. It is opened by foot lever, and dogs cannot open it and spill contents. Two-piece lid prevents garbage falling between containers and outer shell. Garbage receivers of this type are generally manufactured of heavy gauge steel.

Brick Ventilators



Brick ventilators such as that illustrated are designed to take the place of one or more bricks. The one shown here is of the louver type and made of cast aluminum. Two sloping baffles and a low one at rear keep out rain. Lip at front projects beyond face of masonry so that drippings do not strike area just beneath with the risk of spalling. Floor is sloped to assist drainage and insect screen is placed at back.

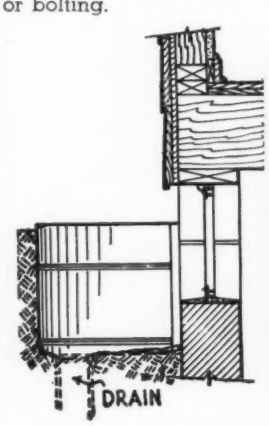
Metal Building Corners

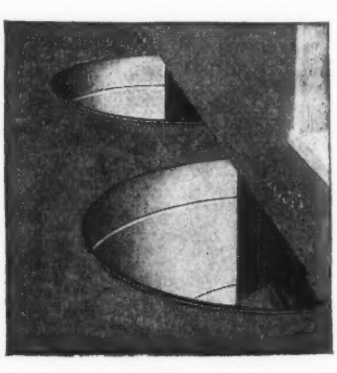
Galvanized metal building corners eliminate mitering of the siding. Just saw the ends square and the metal corners furnish a neat uniform joint. They are made in sizes for various widths of siding.

Steel Area Walls

In low set homes with basement windows below grade, steel area walls provide an enclosure that is economical, quickly installed and lasting. They are generally made of heavy gauge steel, strengthened with ribs or corrugations, and protected with a galvanized finish.

Installation is comparatively simple. Place the steel area wall in the excavation and back-fill with earth (cinders are not recommended). Earth pressure holds the wall in place. The area wall may be fastened to the foundation by nailing or bolting.





Section 3

Windows, Doors and Millwork

When the modern lumber and building products department store began to evolve from the rough lumber yard at the turn of the century the sash door and millwork department was already an established institution with most lumber retailers.

This was a natural development because most millwork items of that time were made of wood. Outside of paint and builders hardware no construction items have a more natural affinity for lumber than millwork. Every building structure requires millwork in some form or other. Millwork, properly promoted, is second only to lumber as the production of profits for the dealers and incentives to the trained salesman.

Because of its technical nature and the continuously changing patterns and styles, millwork estimating, sales, and promotion is a lifetime study.

Manufacturers of sash doors and millwork both wood and metal have made great progress in recent years in modular standardization, in pre-fitting, in styling and in use-efficiency. Both consumers and dealers are reaping a harvest of benefits from the intense competition of wood, metal and plastic in this field.

The U. S. Office of Patents has probably issued more patents covering millwork items than in any other division of construction.

Keeping his line of millwork in harmony with current architectural trends is a task to which every producer devotes constant and careful attention. Leading architects have been employed to assist in the development of designs that are architecturally correct. The selection is so complete and so varied that practically every conceivable need is covered in the well manufactured lines of the large mills. Architects, while exercising freedom of architectural expression, find that stock products are available to take care of their most exacting requirements.

CONTENTS OF THIS SECTION

Introduction
Millwork Definition
Common Millwork Terms
Sales Items
- Doors
- Windows
- Stair Work
- Mouldings
- Frames
- Cabinets
- Trim
- Miscellaneous

Definitions of Common Terms Used in Millwork Department

For Related Sections See Master Index

Not so many years ago, all frames were made on the job by the carpenter who would then trim down a couple of sash in an effort to make them fit the frame. In the installation of the sash, sash cord chains and weights were attached. If the home owner insisted, weatherstrip was applied. The following autumn the carpenter returned to the site to fit the windows with storm sash and the following spring he came back again to install insect screens.

As a result of this procedure, it was difficult for the home owner to gauge in advance the quality of his finished product. Of course, a majority of these installations performed satisfactorily, but there were exceptions. Windows, on occasions, were improperly fitted. As a consequence they rattled or at other times stuck and could not be opened or closed. Very little attention, if any, was paid to the efficiency of the

weatherstrip used. Improper fitting also exposed the wood to extreme moisture and atmospheric conditions. This led to further complications and difficulties.

To overcome these difficulties, and to give the consumer a scientifically constructed window at low cost, the millwork industry brought into existence the prefit window unit. Research was employed in its development. Air infiltration tests were made to gauge the effectiveness of different types of weather-stripping. Precision methods of manufacture were employed which meant that the finished window while tightly fit could be opened and closed with ease.

No prospective home owner need worry today about future window troubles. He knows that through his retail lumber dealer he can purchase a product that spells perfection in window construction, whether it be double hung, casement, sliding, circular, basement or other type. He also knows that behind the product there stands the reputation of a responsible producer.

The principles of prefabrication and precision manufacture that are being applied in the production of prefit window units are also being applied by the industry in the production of kitchen cabinets, china closets, prefit doors, mantels, stairways and a variety of other items classified under the head of stock millwork products.

It is our purpose here to show the items of millwork sash and doors that are being generally merchandised by dealers in the United States and Canada together with data that will assist the salesman.

MILLWORK

MILLWORK DEFINITION—Loosely defined this term would include everything and anything that can be produced in a planing mill or woodworking plant. It has been narrowed down, however, for coordination and harmony in estimating, to include certain items of mill output that are used in building construction:

Wood windows, either open or glazed, according to specifications.

Metal windows, aluminum and steel.

Doors, all kinds.

Window and door frames, either put together or K. D. according to the inquiry.

Window and door trim, including inside door jambs.

Running mouldings, including base, chair rail, picture moulding, hook strip, wainscot cap, etc.

Panel work, either put together or K. D. according to inquiry.

Interior columns and colonnades.

Stair material, not including flooring for landings or stair jacks.

Mantels and mantel shelves.

Metal mouldings.

Casework and cupboards, usually put together.

Sink trim.

Miscellaneous mouldings.

Bent work.

Scrolled work requiring the use of some woodworking machine but not included in any of the above items.

For outside use:

Outside columns.

Balustrades.

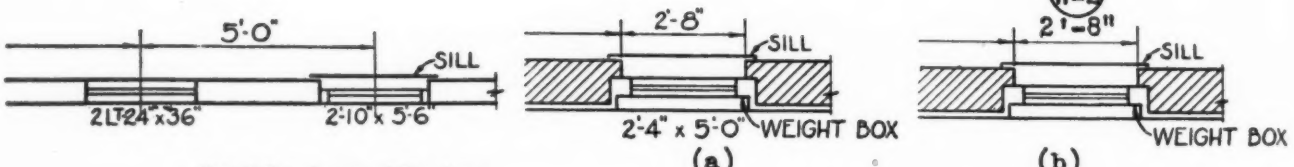
Porch and cornice brackets, usually put together.

Crown and bed mouldings, in linial lengths.

Any miscellaneous mouldings, bent work or scrolled work requiring the use of some woodworking machine but not included in any of the above items.

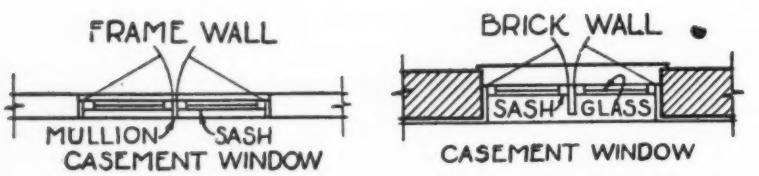
For estimating purposes all flooring, siding and ceil-

Symbols for Windows and Doors

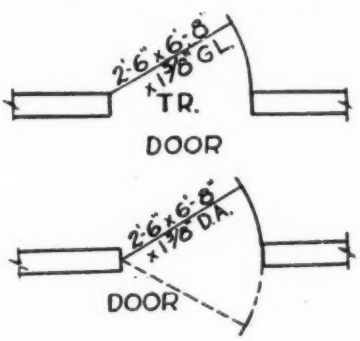


Double-hung Window in Frame Wall.

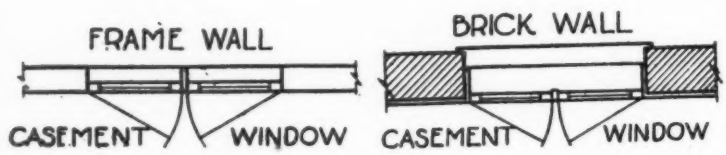
Double-hung Window in Brick Wall.



Symbols for out-swinging casement windows in frame and brick walls.



Symbols for a glazed door with transom and a double action door.



Symbols for in-swinging windows in frame and brick walls.

ing is omitted from millwork lists for the reason that they are regular yard stock and would be included in another estimate.

Unfortunately, this list, or any other, is not arbitrary and no set rules govern the items that may be included and estimators often find themselves in the position of having included either more or less than their competitors with correspondingly unpleasant results. The Millwork Cost Bureau has made some progress in eliminating these differences by means of cooperation among its members, but general agreement as to just what constitutes millwork is far from perfect.

Sales Items

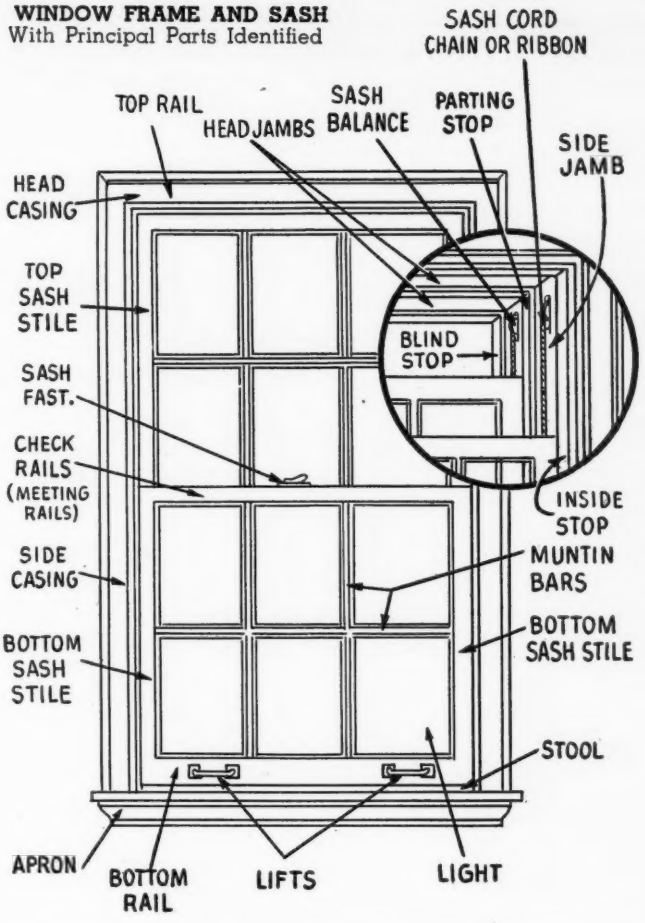
MILLWORK SASH & DOORS

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (V) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

- ( ) Apron
- ( ) Arch Bead
- ( ) Astragals
- ( ) Attic Stairs
- ( ) Awning Type Windows
- ( ) Backband
- ( ) Balusters
- ( ) Base
- ( ) Base Boards
- ( ) Base Blocks
- ( ) Base Molding
- ( ) Basement Doors
- ( ) Basement Frames
- ( ) Basement Stairs
- ( ) Basement Windows
- ( ) Bath Tub Edge
- ( ) Bath Tub Hangers
- ( ) Bays
- ( ) Blinds
- ( ) Bookcase Colonnades
- ( ) Bookcases
- ( ) Brackets
- ( ) Breakfast Set
- ( ) Broom Closet
- ( ) Built-in Alcove Beds
- ( ) Built-in Book Shelves
- ( ) Built-in Bunk Beds
- ( ) Built-in Cabinets
- ( ) Built-in Drawers
- ( ) Built-in Fixtures
- ( ) Built-in Furniture
- ( ) Built-in Writing Desks
- ( ) Bull Type Stair Nosing
- ( ) Bullnose Step
- ( ) Cabinetwork, Special
- ( ) Cap Moulding
- ( ) Cap Sections
- ( ) Carpet Mould
- ( ) Casement Doors
- ( ) Casement Frames
- ( ) Casement Windows
- ( ) Casings, Head
- ( ) Casings, Side
- ( ) Cedar Closet Lining
- ( ) Ceiling Beams
- ( ) Cellar Sash
- ( ) Cellar Windows
- ( ) Chair Rail
- ( ) China Closets
- ( ) Closet Poles
- ( ) Closet Strips
- ( ) Clothes Chute
- ( ) Colonnades
- ( ) Columns, Porch
- ( ) Combination Screen & Storm Sash
- ( ) Corner Beads
- ( ) Corner Boards
- ( ) Corner Cases
- ( ) Corner Windows
- ( ) Cornice Material
- ( ) Counter Edging
- ( ) Cupboard Doors
- ( ) Disappearing Stairs
- ( ) Division Bar
- ( ) Door Frames
- ( ) Door Jambs
- ( ) Doors
  - ( ) Barn
  - ( ) Cabinet
  - ( ) Casement
  - ( ) Cellar
  - ( ) Combination
  - ( ) Cupboard
  - ( ) Factory
  - ( ) Folding
  - ( ) French
  - ( ) Front
  - ( ) Grain
  - ( ) Greenhouse
  - ( ) Industrial
  - ( ) Interior
  - ( ) Laminated
  - ( ) Mirror
  - ( ) Office
  - ( ) Poultry House
  - ( ) Screen
  - ( ) Shed
  - ( ) Silo
  - ( ) Sliding
  - ( ) Store
  - ( ) Storm
- ( ) Doors, Interior
- ( ) Doors, Exterior
- ( ) Double-hung Windows
- ( ) Dutch Doors
- ( ) Electric Fly Screens
- ( ) Entrances
- ( ) Entrance Frames
- ( ) Exterior Doors
- ( ) Fencing
- ( ) Flower Boxes
- ( ) Flush Doors
- ( ) Folding Doors
- ( ) Folding Screens
- ( ) Frames
  - ( ) Brick Veneer
  - ( ) Casement
  - ( ) Display
  - ( ) Door
  - ( ) Garage
  - ( ) Half Circle
  - ( ) House
  - ( ) Hot Bed
  - ( ) Gothic Door
  - ( ) Picture
  - ( ) Porch
  - ( ) Screens
  - ( ) Quarter Circle
  - ( ) Sign
  - ( ) Window
- ( ) French Doors
- ( ) Garage Doors (See Garage Section)
- ( ) Gates
- ( ) Half Round
- ( ) Hanging Shelves
- ( ) Handrail, Porch Steps
- ( ) In-a-door Beds
- ( ) Insect Wire Screening
- ( ) Inside Corners
- ( ) Interior Doors
- ( ) Intermediate Windows
- ( ) Ironing Board
- ( ) Ladders
  - ( ) Attic
  - ( ) Extension
  - ( ) Fruit
  - ( ) Orchard
  - ( ) Painter
  - ( ) Step
  - ( ) Traveling
- ( ) Lattice and Lattice Frame
- ( ) Linen Closets
- ( ) Lintels
- ( ) Louvres
- ( ) Lowered Doors
- ( ) Mantels
- ( ) Mouldings
  - ( ) Band
  - ( ) Base
  - ( ) Brick
  - ( ) Bed
  - ( ) Cap
  - ( ) Cove
  - ( ) Corner Guard
  - ( ) Crown
  - ( ) Door Saddle
  - ( ) Drip Cap
  - ( ) Fillet
  - ( ) Floor
  - ( ) Cutter
  - ( ) Mullion Casing
  - ( ) Neck
  - ( ) Nosing
  - ( ) Panel
  - ( ) Picture
  - ( ) Newels
  - ( ) Angle
  - ( ) Built-up
  - ( ) Porch
  - ( ) Stair
- ( ) Outside Corners
- ( ) Panel Dividers
- ( ) Panelwork
- ( ) Panel Strip
- ( ) Parting Stop
- ( ) Parting Strips
- ( ) Picture Mould
- ( ) Pilasters
- ( ) Pivoted Windows
- ( ) Plate Rail
- ( ) Porch Bottom Rail
- ( ) Porch Columns
- ( ) Porch Material
- ( ) Porch Steps
- ( ) Porch Swings
- ( ) Porch Windows
- ( ) Projected Windows
- ( ) Quarter Round
- ( ) Quarter Round Moulding
- ( ) Quick-Cleaning Pivoted Windows

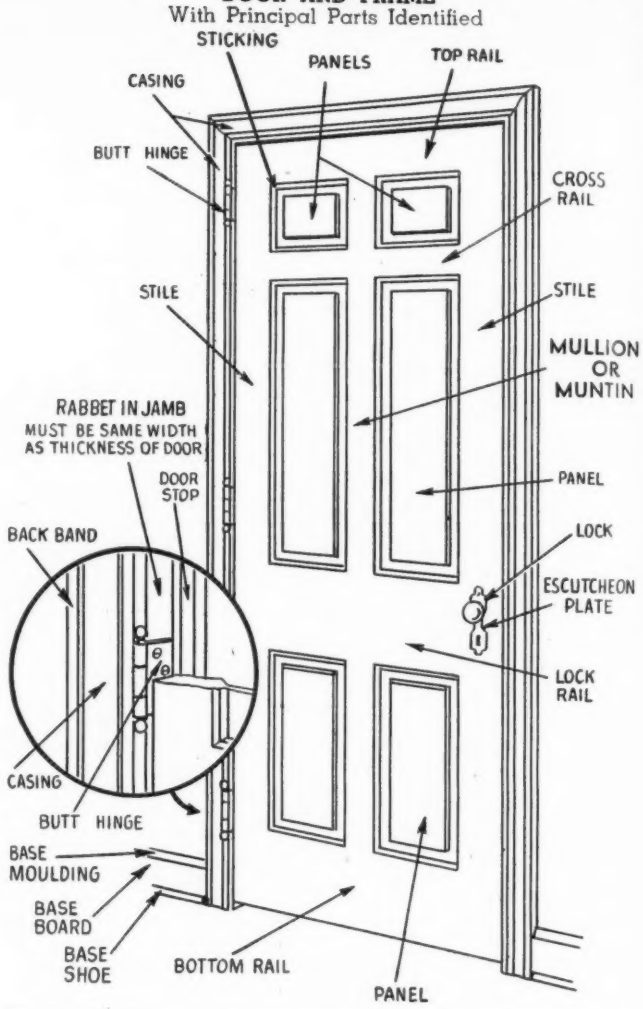
WINDOW FRAME AND SASH
With Principal Parts Identified



Windows, Doors, Millwork

( ) Radiator Covers
( ) Rails
  ( ) Balcony
  ( ) Foot
  ( ) Glass Hand
  ( ) Gooseneck
  ( ) Hand
  ( ) Plate
  ( ) Porch
  ( ) Stair
  ( ) Turn
  ( ) Wainscoting
  ( ) Washstand
( ) Railing, Porch
( ) Railing, Stair
( ) Refreshment Bars
( ) Return Nosing
( ) Return Nosing
( ) Ribband or Ribbon, Frame
( ) Rip Strip
( ) Risers
( ) "Rollaway" Screens
( ) Sash
  ( ) Attic
  ( ) Balances
  ( ) Barn
  ( ) Blinds
  ( ) Casement
  ( ) Cellar
  ( ) China Cabinet
  ( ) Cold Sash
  ( ) Door
  ( ) Enclosure
  ( ) Gable
  ( ) Garage
  ( ) Greenhouse
  ( ) Half Circle
  ( ) Hot Bed
  ( ) Porch
  ( ) Quarter Circle
  ( ) Screen
  ( ) Stall
  ( ) Storm
  ( ) Window
( ) Sash Cord
( ) Sash Weights
( ) Screens
  ( ) Cellar
  ( ) Door
  ( ) Enamel
  ( ) Fireplace
  ( ) Folding
  ( ) Roll
  ( ) Sash
  ( ) Storm Door Combination
  ( ) Window
( ) Self-fitting Windows
( ) Shelving
( ) Shutters
( ) Sills
( ) Skylights
( ) Sliding Doors
( ) Sliding Door Frames
( ) Solid Wing Corner Bead
( ) Spindles
( ) Spring Cove
( ) Stair Material
  ( ) Balustrades
  ( ) Cove
( ) Goose Neck Rail
  ( ) Landing Treads
  ( ) Mouldings
  ( ) Newels
  ( ) Rail
  ( ) Risers
  ( ) Rosettes
  ( ) Starting Newels
  ( ) Stringers
  ( ) Spindles
  ( ) Winders
( ) Stair Newels
( ) Stair Rail
( ) Stair Risers
( ) Stair Treads
( ) Stall Sash
( ) Stool, Window
( ) Stops
  ( ) Blind
  ( ) Door
  ( ) Drawer
  ( ) Parting
  ( ) Window
( ) Store Fronts
( ) Storm Doors
( ) Storm Sash
( ) Storm Window Ventilators
( ) Storm Windows
( ) Straight Faced Nosings
( ) Stringers, Stair
  Strips
  ( ) Carpet
  ( ) Cleat
  ( ) Hearth
  ( ) Lattice
  ( ) Nailing
  ( ) Panel
  ( ) Parting
( ) Sun Porches
( ) Telephone Cabinet
( ) Thresholds
( ) Top Rail
( ) Transom
  ( ) Door
  ( ) Office
  ( ) Store
  ( ) Window
( ) Traveling Ladders
( ) Treads
  ( ) Carpet
  ( ) Half Circle
  ( ) Landing
  ( ) Pad
  ( ) Stair
  Trim
( ) Turned Columns
( ) Wainscoting
( ) Wainscoting Caps
( ) Wainscoting Panels
( ) Wainscoting Rail
( ) Water Table
( ) Weatherstrips
( ) Window Apron
( ) Window Blinds
( ) Window Boxes
( ) Window Boxes
( ) Window Casing
( ) Window Facing
( ) Window Frames
( ) Window Hardware
( ) Window Moulding
( ) Window Sash
( ) Window Screens
( ) Window Seats
( ) Window Shutters
( ) Window Sills
( ) Window Stools
( ) Window Stops
( ) Window Strips
( ) Windows, Metal
( ) Windowsills, Stone
( ) Winter Windows

DOOR AND FRAME
With Principal Parts Identified



Items Asked For But Not Normally Stocked

Windows, Doors, Millwork

Sales Items

METAL MILLWORK, SASH DOORS AND MOULDINGS
(see also Metal Products Section 2)

	Aluminum	Bronze	Steel
Casement Windows	( )	( )	( )
Double-Hung Windows	( )	( )	( )
Basement Windows	( )	( )	( )
2 Light Windows	( )	( )	( )
Pivoted Windows	( )	( )	( )
Projected Windows	( )	( )	( )
Package Windows	( )	( )	( )
Housing Casements	( )	( )	( )
Intermediate Courtmation Windows	( )	( )	( )
Skylights	( )	( )	( )
Screens for Casements	( )	( )	( )
Storms for Casements	( )	( )	( )
Garage Doors (See Garage Section XVI)	( )	( )	( )
Intermediate Casement Doors	( )	( )	( )
Industrial Doors	( )	( )	( )
Accordion Doors	( )	( )	( )
Double Vertical Left Doors	( )	( )	( )
Hangar Doors	( )	( )	( )
Fire Doors	( )	( )	( )

	Aluminum	Bronze	Steel
Bulkhead Doors	( )	( )	( )
Kitchen Cabinets (See Kitchens and Bathroom Section XIV)			
Kitchen Furniture	( )	( )	( )
Bathroom Cabinets	( )	( )	( )
Bathroom Furniture	( )	( )	( )

Sales Items

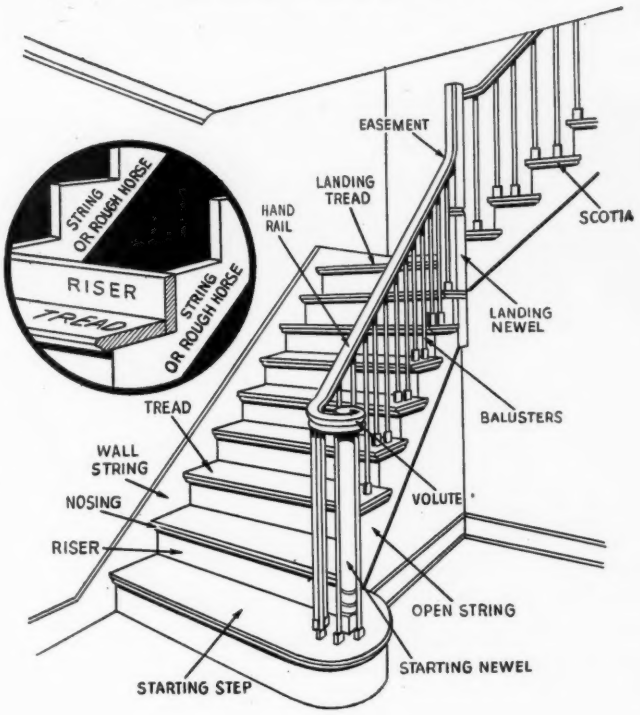
METAL AND PLASTIC MILLWORK, SASH AND DOORS AND MOULDINGS

	Aluminum	Bronze	Steel
Corner Beads	( )	( )	( )
Counter Edging	( )	( )	( )
Bath Tub Edging	( )	( )	( )
Linoleum Edging	( )	( )	( )
Inside Corners	( )	( )	( )
Outside Corners	( )	( )	( )
Casing	( )	( )	( )
Baseboards	( )	( )	( )
Base Moulding	( )	( )	( )
Electrical Mouldings	( )	( )	( )
Weatherstrips	( )	( )	( )
Thresholds	( )	( )	( )
Door Guards	( )	( )	( )
Door Saddles	( )	( )	( )

Items Asked For But Not Normally Stocked

OPEN STAIR

With Principal Parts Identified

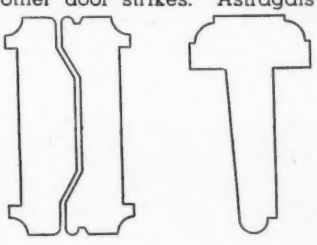


MILLWORK DEFINITIONS

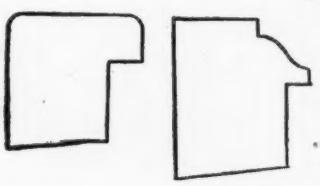
ACCESS DOOR—A door which opens to concealed equipment or seldom-used part of a building, such as a door to permit access to concealed plumbing.

APRON—Material which by shape or use suggests an apron. (a) The horizontal piece of wood trim, plain or moulded, to finish below the stool of a window; (b) A strip, usually of lead, attached to a wall to overlap the flashing and to protect a joint; (c) A piece of board for conducting loose material past an opening. See Window.

ASTRAGAL—Moulding attached to one of a pair of swinging doors against which the other door strikes. Astragals for sliding doors are designed male and female—one is placed on the door and the other on the jam for single doors and one on the meeting edge of each door in a pair. Also a sash bar. Also a small semicircular moulding or bead encircling a column or post below the capital.



BACK BAND—Moulding used on the side of a door or window casing for ornamentation or to increase the width of the trim.



(Continued on Page 118)

"American Home"

DEALER DESIGNED TO D

FOR FEATURES

EIGHT EXCLUSIVE ADVANTAGES

Making Mesker "American Home" Packaged Metal Casements the most advanced on the market.

1. The *only* Packaged Metal Casement with a wood frame designed to allow space for Venetian blinds, shades or drapes to be set within the window opening in a 6-inch frame wall.
2. The *only* Packaged Metal Casement with wood frame designed for inside finishing with plaster, tile or stock wood trim.
3. The *only* Packaged Metal Casement with Close-Set Expansion Hinges whose snug fit makes practical outside storm-sashing possible, yet open wide enough to permit washing outer glass from inside.
4. The *only* Packaged Metal Casement with Outside Metal Storm Sash. Now for the first time metal casements can be winter protected with efficient, practical *outside* metal storm sash, keeping weather and condensation *out* . . . and heat *in*.
5. The *only* Packaged Metal Casement giving the required minimum of 2-inches dead air space between the metal storm sash and metal window for *maximum* winter insulation.
6. The *only* Packaged Metal Casement with Automatically Ventilating Outside Metal Storm Sash which opens and closes automatically with the window vent for winter ventilation.
7. The *only* Packaged Metal Casement with Automatic Top and Bottom Lock. No more center handles, no need to raise blinds. When rotary operator closes vent, it's locked top and bottom.
8. The *only* Packaged Metal Casement manufactured *both* in Steel and in Aluminum.

SINCE 1879

Mesker Brothers

RESIDENTIAL • COMMERCIAL • INDUSTRIAL
METAL WINDOWS
4336 GERALDINE AVE. ST. LOUIS 15, MO.

PACKAGED RESIDENTIAL

STEEL AND ALUMINUM CASEMENTS

O DEALER SPECIFICATIONS

FOR PROFIT

Here's a new profit opportunity for Building Supply Dealers . . . a complete line of packaged residential casements offered both in steel and in aluminum bearing the MESKER Name, famous for windows since 1879.

NO EXCESSIVE INVENTORY

Just a few standard sizes eliminate need for excessive inventory. Modern packaging permits low cost handling, storage and filling of orders. Extra profits are produced from inclusion of hardware, screens, storm-sash and trim in every unit sale.

UNIT PACKAGED

Windows are shipped completely packaged and glazed (or unglazed at buyer's option). Screens and storm-sash, all standard sized and interchangeable, are packaged separately, to be delivered when the building nears completion.

PROTECTED DEALER PLAN

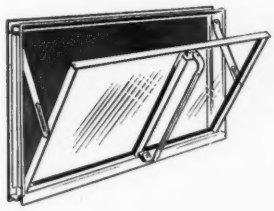
Mesker Metal Windows are nationally advertised in leading magazines . . . have been for years. They are known to builders and home owners from coast to coast, and have a ready acceptance everywhere. Our *Protected Dealer Plan* helps you cash in on this built-up demand.

DELIVERIES

Yes, delivery problems are still with us, but we're making headway. Production lines are moving and more and more "American Home" Windows are coming off them every day. But even with our new plant working to capacity, there won't be enough to supply *all* the demand this year. For latest facts on delivery, get in touch with the Mesker Distributor in your territory.

BASEMENT AND UTILITY WINDOWS

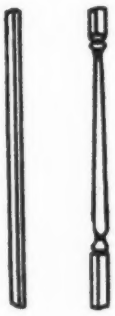
Here's another fast-moving item in the live MESKER line . . . a metal basement window with exclusive "finger-touch" open and close action. An entirely new frame design gives greater clearance between operating parts, yet is absolutely weather - tight. MESKER also manufactures a Utility Window suitable for garages, milk houses, barns, tool houses, sheds and similar buildings. Write for literature.



Mesker Brothers
Mesker Brothers METAL WINDOWS DOORS SCREENS
YOU DESIGNED THE
"AMERICAN HOME" METAL WINDOW . . .
. . . WE BUILT
THIS PLANT TO MAKE IT!

Windows, Doors, Millwork

(Continued from Page 115)



BALUSTERS—Small spindles or columns forming the main part of a railing for stairway or balcony, fastened between a bottom and top rail.

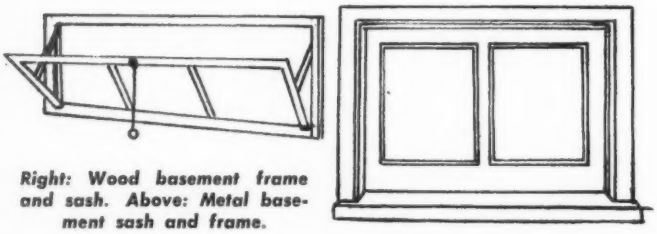
BALUSTRADE—A row of small balusters supporting a coping or cornice and forming a parapet or enclosure.

BASE (ROOM)—A flat piece of finish lumber frequently moulded on one edge and from four to eight or even ten inches in height. It is installed to provide a finish at the junction of wall and floor and to protect the plaster, or whatever wall finish is used, against the taking of harm when the floor is scrubbed or mopped. Another common name for base is "mop-board". Base is almost always laid with a small moulding called a "shoe" at the intersection of base and floor. The shoe being small enough to bend, any slight variation from a straight line that might occur either in base or floor is covered by the shoe. In other words the use of the base shoe obviates the necessity of scribing the base to the floor. A two member base consists of base and shoe. In some of the older houses the base is topped by a moulding similar to a panel moulding which is laid on along the top edge and either mitered or coped at the corners of the room. A three member base is the base with both shoe and base moulding.

BASE MOULDING—Moulding used to trim the upper edge of interior base board.

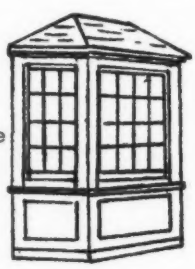
BASE SHOE—Moulding used next to the floor on interior base board. Sometimes called a carpet strip.

BASEMENT FRAMES AND SASH—Wood or metal windows



Right: Wood basement frame and sash. Above: Metal basement sash and frame.

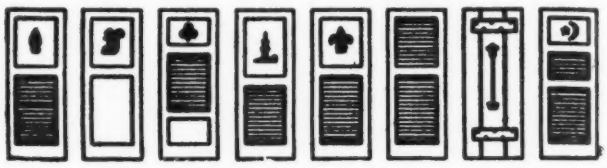
BAY WINDOW—A window placed in the bay or "bow" of a building.



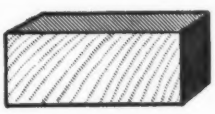
BED MOULDING—A moulding in an angle, as between the overhanging cornice, or eaves, of a building and the sidewalls.

BETWEEN GLASS—The thickness of a member between two lights of glass.

BLINDS—(SHUTTERS)—Light, wooden sections in the form of doors to close over windows to shut out light, give protection or add temporary insulation. Commonly used now for ornamental purposes, in which case they are fastened rigidly to the building. See House Cross Section.



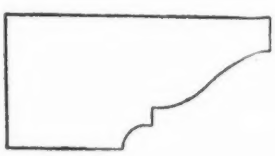
BLIND STOP—A rectangular moulding, usually ¾"x1⅜", used in the assembly of a window frame. See Window.



BOXED STAIRS—Stairs which pass from one floor to the next between two walls. Neither side of the stair is open and there is no balustrade unless one is needed around the well hole on the upper floor. A boxed stair is very often boxed from the first floor clear through to the ceiling of the second floor, in which case there would be no well hole exposed and, of course, no balustrade. Often a plain round hand rail is placed along the wall on either, or both sides. These hand rails are supported by brackets, usually of metal, attached to the wall.

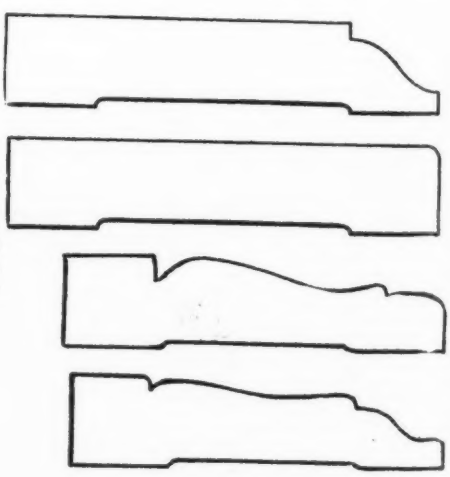
BULL NOSED TREAD—A common but incorrect term applied to what is more properly called "Circle and tread".

CAP MOULDING—Moulding used at the top of window and door trim to ornament the plainness of the trim.



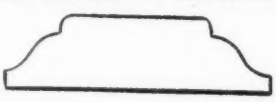
CASED OPENING—An opening without doors, finished with jambs and trim.

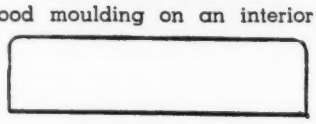
CASING—Wide moulding of various widths and thicknesses used to trim door and window openings.



CASEMENT FRAMES AND SASH—Frames of wood or metal enclosing part or all of the sash, which may be opened by means of hinges affixed to the vertical edges.

CHAIR RAIL—A horizontal wood moulding on an interior

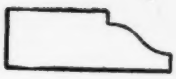




wall to protect it from being damaged by the backs of chairs. See House Cross Section.

CHECK RAILS—Meeting rails sufficiently thicker than a window to fill the opening between the top and bottom sash made by the parting stop in the frame. They are usually beveled. See Window Unit.

CHECK STOP—A moulding used to hold the bottom sash of a double-hung window in place in a window frame.



COLD FRAME—(HOT BED SASH)—A large sash specially built for hot beds.

COLUMN—Any supporting pillar of wood, steel, masonry or other material. See House Cross Section.

COMBINATION WINDOWS—Windows designed for use in the same manner as combination doors.

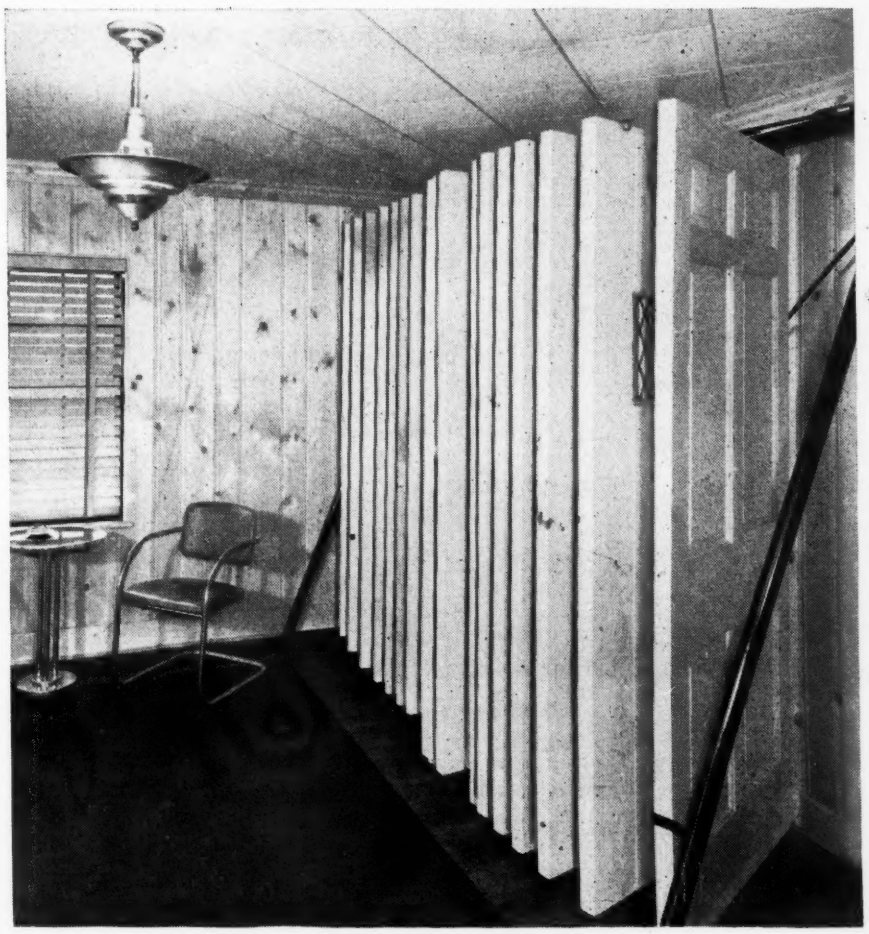
CHECK RAIL WINDOW FRAME—(Brick veneer construction)—A window frame adapted to brick veneer construction, in which a check rail window may be installed and used. The essential parts of a brick veneer frame are the same as for frame building construction except that the outside casing is replaced by a brick moulding (staff bead) and a blind stop should be used which is wide enough to provide nailing space on the adjacent stud. Brick veneer frames are set at the time the wooden framework is built and the brick veneer is laid up later. When the brick mason lays the brick around the frame, mortar is slushed in between the brick and the blind stop. The brick moulding can be applied to the frame before setting if desired, but it is advisable to apply it after the brick are laid.

The above refers wholly and completely to the old conventional type of weight box frame that came into use with the check rail window. Frames for brick veneer construction differ so slightly from those for frame construction that the

(Continued on Page 124)

HOUSE DOORS

DESCRIPTION
1 panel (insert)
3 panel
3 panel
2 panel—1 light
2 panel—1 light
1 panel
1 panel
1 panel
3 panel
1 light
1 light
1 light
6 panel Colonial
2 panel
1 panel—1 light
2 panel—1 light
3 panel—1 light
2 panel—1 light
1 panel—1 light
3 panel—1 light
2 panel—3 light
3 panel—3 light (vertical)
3 panel—3 light (horizontal)
2 panel—3 light (horizontal)
1 panel—3 light (vertical)
1 panel—3 light (horizontal)
2 panel—4 light (2 wide—2 high)
3 panel—4 light (2 wide—2 high)
3 panel—4 light (vertical)
4 light (horizontal)
4 light (horizontal)
4 light (horizontal)
5 light (horizontal)
5 light (horizontal)
5 light (horizontal)
3 panel—6 light (3 wide—2 high)
9 light (marginal)
9 light (marginal)
9 light (marginal)
10 light (2 wide—5 high)
10 light (2 wide—5 high)
10 light (2 wide—5 high)
12 light (3 wide—4 high)
12 light (3 wide—4 high)
12 light (3 wide—4 high)
15 light (3 wide—5 high)
15 light (3 wide—5 high)
15 light (3 wide—5 high)



ANDERSEN *Windowalls*...

RECIPES FOR THE MODERN KITCHEN

ANDERSEN WOOD CASEMENT WINDOW UNITS pair up over the sink of a highly efficient kitchen. The sash swing out, away from the inside of the house, bringing adequate ventilation to a busy workroom.

WHEN architects and designers go to work on the plan of the kitchen they are acutely aware of the importance of the window over the sink. And ready for their specification are these two Andersen WINDOWALLS—the casement and the gliding window.

In the kitchen Andersen WINDOWALLS perform the same multiple functions as in any other room in the home—to frame a view, to let in sunshine and fresh air, and to act as a weatherproof "wall" against cold air.

For additional details on Andersen kitchen window installations and the uses of Andersen WINDOWALLS in other rooms, consult Sweet's Catalog, or write directly to Andersen. WINDOWALLS are distributed through regular millwork channels, to lumber and building supply dealers.

Andersen Corporation

ANDERSEN HORIZONTAL GLIDING WINDOW UNITS provide a broad expanse through which sunlight can enter this small-home kitchen. Here the window helps turn the kitchen into a cheery room for the homemaker.

ANDERSEN WOOD CASEMENT WINDOW UNITS with all three sash swinging. Sash are operated easily with the roto gear handles at the sill—eliminating all the hard work and straining in traditional kitchen windows.

BAYPORT • MINNESOTA

remarks in the paragraph immediately following with reference to changes in this feature of the frame may be applied to the brick veneer frame as well. The need for effective insulation for brick veneer buildings is no less than in other types and the setting of the frame in close contact with the studding to eliminate heat loss is an important feature.

Manufacturers of the new type frame usually model the frame building type so that the changing of the outside casing for a brick moulding adapts the frame for use in a brick veneer wall.

CLOVERLEAF PATTERN—A pattern of small moulding that consists of three beads with the middle one slightly raised above the others. The most common example of this pattern is a design of screen moulding as is shown in American Lumber Standards as numbers 7103, 7104 and 7105. The same pattern is used in some parts of the country as battens and astragal faces are often of the same design.

COLONIAL—A name given to a number of articles of stock manufacture which are supposed to be reproductions of the designs used for the same articles during the Colonial period of American architecture. There are Colonial doors, Colonial columns, Colonial mantels, Colonial siding and a host of Colonial other things that may or may not display some resemblance to similar articles of the time of Washington and Jefferson.

COMBINATION DOOR—A door which can be easily changed from a screen door to a storm door by removing the large screen panel and replacing it with a panel of glass. The screen panel has been standardized so far as design is concerned and practically all manufacturers seem to be agreed on this one feature. All combination doors are made from ½ inch to one inch over-size in width to permit them to occupy the space between the side casings, or brick-mouldings, of a regular door frame, and one inch over-size in height to allow for variation as to use of threshold or slope of sill.

CROSS PANEL DOOR—A door in which all the panels have their longest dimension parallel to the rails of the door is called "cross panel door".

CROWN MOULDING—A moulding used on the face or outer edge of the cornice. It is made for stock in several patterns and in sizes from ¾ by 3 inches to ¾ by 5 inches. Crown moulding is usually of the "sprung" moulding type. Its use is to make an ornamental angle filler underneath the projection of the shingles where they project over the verge board. There is, however, a flat crown moulding that is perfectly flat on one side and has a long o-gee for one-third or more of the space on the other side. One edge is square and the other is the conclusion of the taper of the o-gee. The flat side of the moulding is nailed flat against the verge board directly underneath the projection of the shingles. Flat crown moulding is not a standard stock moulding.

CUTTING BILL—A list of cuttings with sizes given in accurate measurements, to be used for a specified purpose. The making out of a cutting bill of lumber pieces to be used in the manufacture of any proposed piece of millwork is one of the important features of "Billing into the mill", and the mechanical operation of getting out a cutting bill economically is probably one of the most important jobs in any mill. It requires knowledge and skill that can only be acquired by many years of experience.

DETAIL—As used by architects and builders, detail refers to the smaller parts into which a composition may be divided. It is applied generally to mouldings and other enrichments, to drawings showing the construction and manner of assembling the various parts.

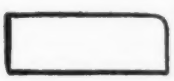
DOWEL—A dowel is a short round pin which makes a joint between two pieces of wood by being inserted into adjacent holes in each piece. Glue is usually used for holding but sometimes a small cross pin is inserted through the dowel.

DOOR, BATTEN—A door made of sheathing secured by strips of board put crosswise.

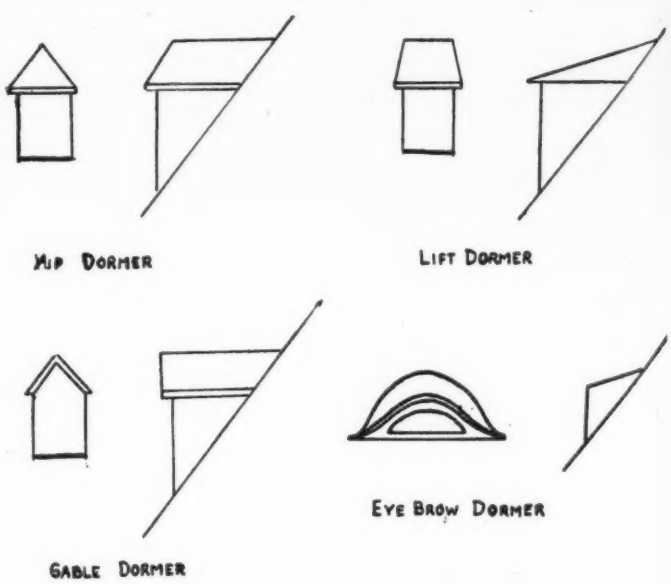
DOOR FRAME, EXTERIOR—The frame in which a door swings in the outside wall of a building.

DOOR JAMB, INTERIOR—The surrounding case into which and out of which a door closes and opens. It consists of two upright pieces, called jambs, and a head, fitted together and rabbeted. See Jamb.

DOOR STOP—A moulding planted on the face of door jambs to stop the door.



DORMER—An internal recess, the framing of which projects from a sloping roof. See Fig. 24 of Details for House Framing.

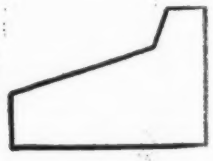


DOOR TRIM—The casing placed around an interior door opening to conceal the break between the plaster or other wall covering and the door frame or jamb. See Casing.

DOUBLE-GLAZING—Windows or doors with a double glass pane with an air space between them, hermetically sealed, to provide insulation, generally built into the sash. The term is used occasionally in referring to storm sash.

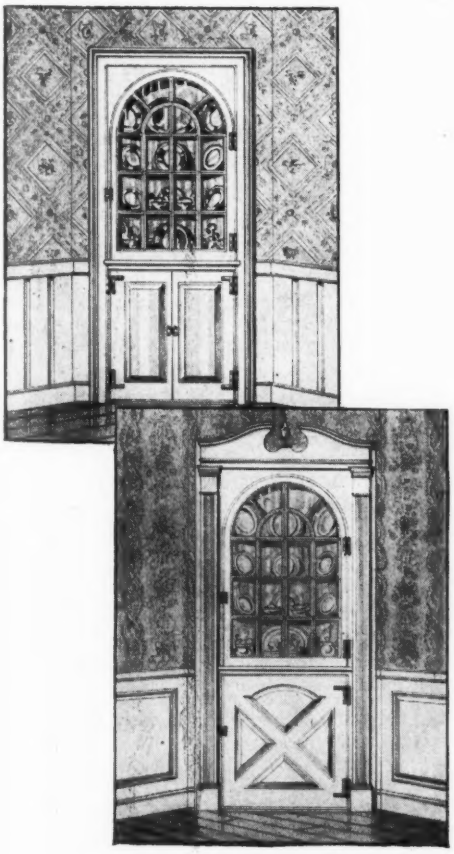
DRIP—(a) A member of a cornice or other horizontal exterior finish course which has a projection beyond the other parts for throwing off water. (b) A groove in the outer side of a sill to cause water to drop off on the outer edge, instead of drawing back and running down the face of the building.

DRIP CAP—A moulding placed on the exterior topside of a door or window to cause water to drip on the outside of the frame.



EGG AND DART—A moulding consisting of continuous series of ovals cut in relief with a small transverse arris separating each from the next. It is of ancient Greek origin and was, of course, originally hand carved and was considered highly ornamental in effect. Its now, however, and has been for

WOODWORK OF *Authentic Colonial* DESIGN



During the seventy-five years that Gregg & Son, Inc. has been manufacturing quality millwork, the name of the firm has become associated not only with many substantially-built houses, but with some of New England's finest examples of true colonial architecture.

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many years, a favorite pattern for the pressed moulding manufacturers who produce it in several sizes from one-half inch to two inches or even more in width.

ELECTRIC MOULDING—A moulding run with a groove on the under side to cover electric wire or cable.

FILLET—A small, flat face or band used principally between mouldings to separate them from each other. Also called "neck moulding".

FIRE DOOR—A door construction, consisting of door, frame, hardware, and sill, which under standard fire test conditions meet the requirements for the location in which it is to be used.

FIRE DOOR, HEAT-ACTUATED—Designed to close automatically under the action of heat or smoke.

FIRE DOOR, SELF-CLOSING—Normally closed at all times and designed to close automatically upon being opened.

FLIGHT—(Of stairs)—A series of connected steps leading from floor to floor of a building. The "flight" is the complete assembly and may consist of two or more "runs" and include all rail, baluster, brackets, etc., according to plans. Any connected balustrade on the level around the well hole should be included. In making a take-off of stairwork for millwork, estimate only the items which are regarded as finish should be included. Neither the rought horses (or jacks) which are the unexposed supports, nor the flooring on the landings should be considered. Such items are always figured in with the regular lumber yard stock.

FLUSH DOOR—"Flush" is the name given to that type of door which has an absolutely plane surface from edge to edge. They are often ornamented by the cutting of grooves and by the planting on of small mouldings, but the name sticks because the basic flush door is of a construction different from other types and the variation in design is not enough to effect its individuality. The door was originally designed for use in hospitals because the plane flat surface contributed to the hygenic idea, but architects and builders seemed to fancy it so that it is now found in practically every type of building.

FRAME—A frame is a group of lumber pieces so shaped and assembled as to form an enclosure and a support for a door, window or sash. The essential parts of the group are the jambs (head and side) and the sill.

The word "frame" is applied to both exterior and interior openings although the term "jamb" is more frequently given to the interior unit. Exterior frames differ somewhat in construction with reference to their use in frame buildings, brick veneer buildings or masonry buildings and these differences are indicated in the reference applying to each type. It should be noted that while the exterior casing (or brick moulding) is always figured as part of the frame, the inside casing, stool, apron, etc., are regarded as trim and figured as such in millwork estimates. It is highly important to note also that the consideration of frames should always be in connection with the articles which they are to support. This is perhaps not so important in connection with doors as in windows, for door sizes are well established, but there is much variation in window sizes, and rules for figuring opening (or frame) sizes are not well enough established and recognized to eliminate the possibility of misunderstanding. Types of frames:

Basement sash frame
Borrowed light sash frame
Box frame
Brick veneer frame
Casement sash frame
Casement sash frame (frame building construction)
Casement sash frame (brick veneer construction)
Casement sash frame (masonry construction)
Check rail window frame
Check rail window frame (frame building construction)
Check rail window frame (brick veneer construction)
Check rail window frame (masonry construction)
Church window frame
Circle head frame
Circle outside square inside
Door frame
Double hung window frame
Front entrance frame
Gable sash frame
Gothic frame
Outside door frame
Knock down (K. D.) frame
Louvre frame
Masonry frame
Outside door frame
Outside door frame (frame building construction)
Outside door frame (brick veneer construction)
Outside door frame (masonry construction)
Peak head frame
Plain Rail window frame
Plank frame
Segment head frame
Slip head frame
Stud frame
Transom frame

FRENCH DOOR—A glazed door without panels and having the glass opening divided into numerous small lights. The above definition follows the prevalent idea and there is no reason why it should not be accepted as correct. Originally, however, the term "French door" was applied to a door without wood panels and with unusually narrow stiles and rails. The number of lights did not effect the name.

GLASS STOP—Moulding used to fasten glass in doors or window sash.

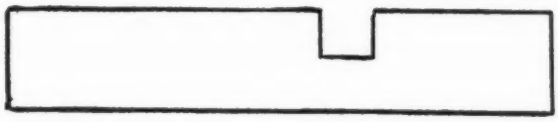
GOOSENECK—A peculiarly shaped piece of stair rail which curves upward from the ramp to the vertical and then takes a right angle to the horizontal, to bring the course of the rail to the proper point on the landing newel.

HALF ROUND—A moulding whose cross section would show a half circle.

HOOK STRIP—A horizontal band of interior wood finish to which metal clothes hooks are attached, usually in clothes closets.

JALOUSIE—A blind or shutter with fixed slats sloping upward from without to admit air and light but to exclude rain and sun.

JAMB—The side post or lining of a doorway, window or other opening.



JAMBS—That part of any frame, either window or door, which surrounds and contacts the thing which the frame is intended to support. There are always two side jambs and a head jamb in every frame (except in Gothic frames, where no head jamb is indicated, and in Peak head frames, where there are two), and all stops are fastened to the jambs. In old style check rail window frames the pockets and pulleys are located in the side jambs but some of the more modern manufacturers are using patented spring balances which are placed upon the upper side of the head jamb and this, of course, eliminates both pockets and pulleys. There are one or two types of spring balances that are intended for installation at approximately the position of the conventional pulley and holes are cut for them just as pulley holes have been cut in the old style frame, but this requires either that the stud be set back far enough to receive them or that gouges be made in the studding.

KNOCK DOWN—Any article of millwork which is manufactured to the extent of the completion of all machine work and delivered to the customer in that condition without being put together or nailed up. Stock outside window and door frames are invariably brought to the lumber dealers warehouse in that condition on account of the excessive freight rates on the completed article. Sash and windows are sometimes handled in this way and a considerable number of other articles are furnished either K. D. or semi-K. D.

LANDING NEWEL—A newel used to carry the balustrade of a stair at a landing or at the top of the flight. In fact, any angle in the face string would, in correct construction, call for a landing newel, or angle newel, as they are very often and quite correctly called.

LANDING TREAD—A strip of the same kind of wood and of the same thickness as stair treads, about 4 inches wide, rabbited on one side to the thickness of the finish floor and nosed on the face edge the same as the tread. Used as a finished edge on stair platforms and around stair wells.

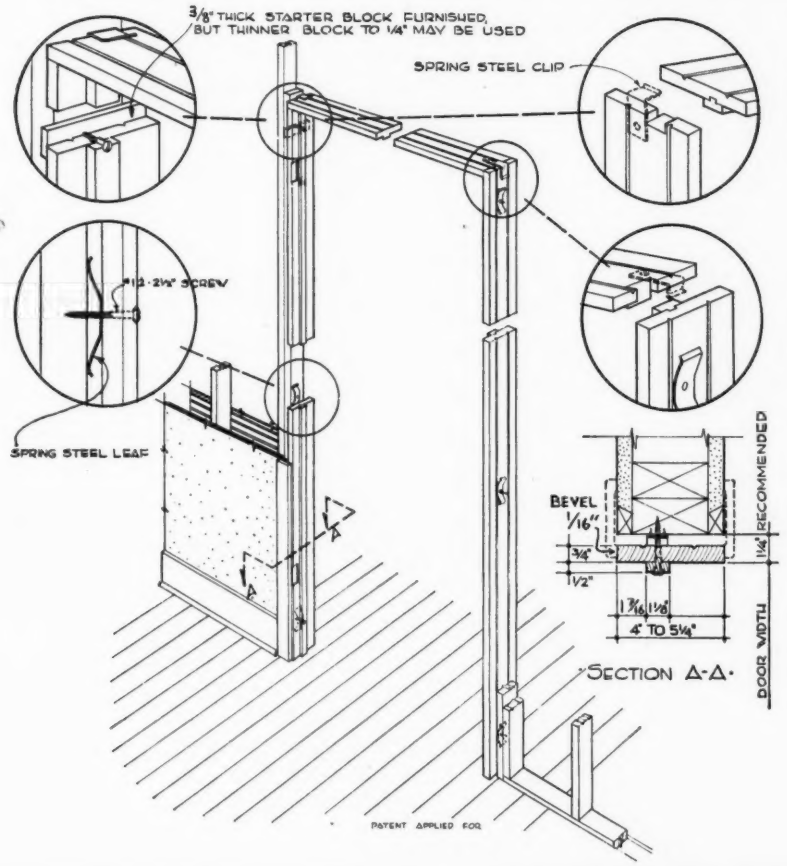
Amazing New *Tru-sized* DOOR JAMB Does A Better Job

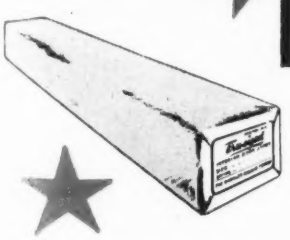
7 TIMES FASTER—

Adjustable to variations in Door Sizes!

No Nailing! **Only 3 precision milled pieces to handle on the job!**

"Shock-Absorber" Springs Assure Accurate Fit for Life of Building!





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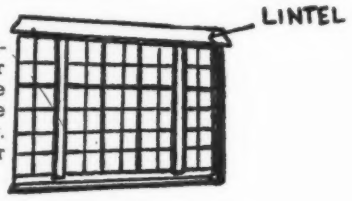
Windows, Doors, Millwork

LIGHT—Space in a window sash for a single pane of glass. Also a pane of glass. See Window Unit.



LINTEL—A horizontal member above a window or door opening to provide additional support to the wall above the opening. Usually of wood, metal or stone.

MITER JOINT—A joint, usually endwood to endwood, at an equally divided angle. Miter joints are not usually satisfactory and cabinet makers avoid them unless the members are well supported against warping. It is easy to fit and is held in place by stiles and rails. Raised moulding is quite another matter, for the finisher must not only make a perfect miter but he must also fit the moulding tightly against the stiles and rails to guard against warping and failure of the joint. Either operation is easy but together they make the otherwise unexplained difference in cost between flush moulding and raised moulding.

MOULDING—Material, usually patterned strips, used to provide ornamental variation of outline or contour, whether projections or cavities, such as cornices, bases, door and window jambs and heads, etc.

MULLION—The Standard Sash and Door list defines this term as follows: "An upright or vertical bar, usually wider than the ordinary bar, dividing the glass in a sash, or a wide upright bar dividing two sashes in a frame. Applies also to upright bars in doors." There seems to be a decided tendency in most parts of the country to use the word "mullion" more in connection with frames than with sash. This is as it should be, for while there is no doubt as to the correct meaning when applied to frames, there has always been some question regarding its use in connection with sash. There is some confusion also in the use of the term when applied to doors. "A vertical division in any frame between two windows, sash or doors", is a true definition as far as it goes and the opinion of this book is that it goes far enough.

MULLION CASINGS—The vertical casing that covers the mullion (both inside and outside) of a multiple window, sash or door frame. The inside mullion casing should be of the same species of wood as the balance of the finish of the room in which it is located, and be figured, in estimating, as a member of the side of trim of which it is a part. The outside mullion casing should, of course, be of the same wood as the other outside casings on the same job. The width of both mullions depends upon the kind of frame used. The standard weight box frame usually used mullions 5¼ inches wide, but the more modern types of narrowline frames use them somewhat narrower.

MULLION FRAME—Any frame which contains two or more window or sash openings in the same unit. A unit with two windows (or sash) is called a "twin", with three windows it is called a "triplet", with four it is called a "quadruplet" (or quad), etc. The same term would apply to doors also but instances where two or more doors are included in one unit are so few that the term is seldom used in that connection.

MUNTIN BAR—The Standard list of the National Door Manufacturers' Association, Inc., defines this term as "Any short or light bar—either vertical or horizontal—in a sash or door between glass or panels and not extending the full width or length of the article."

NEWEL (Interior stair)—Stair newels are almost invariably made of hardwood and are of both the boxed and the "turned out of solid" type. According to use there are two types—the starting newel and the landing, or angle, newel.

NOSING—As usually applied, this term is used to designate the rounded edge of a stair tread which projects forward of the riser. The term is also applied to the narrow strip (sometimes called "Landing tread") which is made to match the tread at the edge of a landing and around the well hole. In this use it is laid flush with the flooring and makes a covering for the endwood of the pieces of flooring that are laid at an angle with the edge of the well hole.

ODD—With reference to millwork, this term is applied to any size, pattern or design of doors, windows, sash, frames, or other millwork that is not shown in the stock lists of wholesale millwork warehouses.

OPENING SIZES—The "Opening size" of a window or sash is the total size of the glass, in width and height, plus whatever allowance is made for the wood that is used for stiles, rails, mullions and muntin bars. In other words, the opening size of a window or sash is the finished size as it sets in place in the frame.

PANEL DOOR—Refers to doors having stile and rail construction with the space between the stiles and rails filled with wood panels. The joints where the rails join the stiles is usually doweled but it is not at all unusual for small mills to use mortise and tenon joints. Panel doors and sash doors use the same construction so far as the frame is concerned and panel doors may be either solid or veneered. There is no standard layout for any of the stock paneled door types. While the appearance of each type is approximately the same in all factories, the width of the face of stiles and rails may vary somewhat. The Standard Sash and Door list of the National Door Manufacturers' Association gives the following: "to apply to all doors not otherwise provided for regardless of the arrangement of panels or grade."

PIECE CORE—The core of veneered doors is almost always built up of short pieces. This is what is called piece core construction. It has advantages over every other kind, at least so far as is known at present. See "Core."

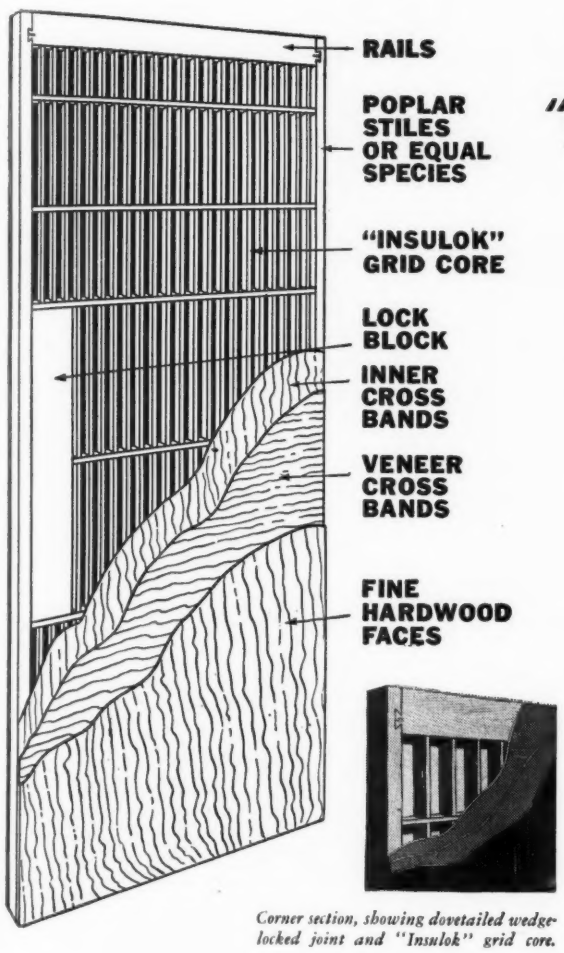
PLAIN RAIL WINDOW—Plain rail windows consist of two sash so arranged in the frame as to slide vertically, each past the other. Stock plain rail windows are always 1⅛ inches thick and the frame channel in which they slide is made just wide enough to accommodate the thickness of two sash without any allowance for check stop as is the case with check rail windows. In other words, both top and bottom sash slide in the same channel. The top rail of the lower sash and the bottom rail of the top sash are perfectly plain and the same thickness as the stiles. When the upper sash is clear up and the lower sash is clear down these meeting rails are supposed to conform to each other to close the opening. The construction is not good, however, and the tendency of both sash to get out of line is great and where weather conditions are severe the sash are too loose to be efficient in keeping out the cold. There are two kinds of plain rail windows—"Eight Light" and "Twelve Light."

POCKETS—Any check rail window frame in which weights are used to balance the sash must include provision for a space just back of the jambs to permit the up and down movement of the weights. A small closable opening must also be provided in the jamb to permit access to the weights after the installation of the inside casings. This space together with the opening in the jamb is called "pocket."

POCKETS AND PULLEYS—This term used in the description of a check rail window frame indicates that the frame is "double hung" or that each sash is balanced by weights. The weights require a "pocket" or weight track, and a closable opening must be made in each jamb to give access to the weights after the inside casing is installed. The use of weights also necessitates pulleys over which the sash cord is passed for the balancing of sash and weights. Some of the more recent types of frames have done away with weights and balance the sash by means of spring balances, which are installed either above the head jamb or in the side jambs at approximately the same points occupied by the pulleys in the conventional type. In these new frames there are neither pockets nor pulleys. Most of these weightless frames are patented and have been given names which serve as the description without recourse to distinguishing features.

QUARTER ROUND—A moulding whose cross section would be one-quarter of a circle. A very necessary item of stock in all lumber yards. In softwood the sizes carried are 1.2 inch by ½ inch, ⅝ inch by ⅝ inch, ¾ inch by ¾ inch and 1 1/16 inches by 1 1/16 inches, although the second and last sizes are frequently omitted. Wholesale warehouses stock all sizes in soft wood and all except the last in south-

MENGEL FLUSH DOORS



Corner section, showing dovetailed wedge-locked joint and "Insulok" grid core.

"Insulok" Grid and Dovetailed Wedge-locked Joint add Extra Strength and Rigidity

The "700" series (7 ply) Mengel Flush Door gives buyers and builders a bargain in strength, lightness, durability and beauty.

The "Insulok" grid and the dovetailed wedge-locked joint (both illustrated at left) combine to produce a door of great dimensional stability and strength at no sacrifice to light weight.

Mengel Flush Doors are built to rigid standards of quality with top-grade materials. The entire assembly is hot-bonded with resin glue... producing a rugged finished door that will, under normal conditions, last the life of the building.

Mengel Flush Doors, 1⅜" thick, are currently being made with mahogany, birch and gum faces.

New Type FLUSH DOOR ON THE WAY

Soon, United States Plywood will introduce a new fire-resistant, wood-veneer-faced flush door, ideal for use in schools, hotels, hospitals and other institutions. Watch for the announcement.

STANDARD PANEL DOORS OF DOUGLAS FIR

The warehouses listed below carry a complete line of economical, dependable Douglas fir panel doors. The popular two-panel and six-panel models are illustrated.

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ern yellow pine. The 3/4 inch size is a warehouse item in oak and usually in birch and gum.

QUARTER TURN—Stair rail that makes a right angled turn as in a balustrade built around a well-hole on second floor. This would be "on the level" and is the most usual form. Quarter turns "on the ramp" are sometimes used but are usually included with either a goose-neck or an easing.

RAIL—The cross or horizontal members of the framework of a sash, door, blind or any paneled assembly.

RAISED PANEL—Panels that increase rather abruptly in thickness at a point from one to two inches from the enclosing frame. The point of increase is parallel to the edge of the frame and equi-distant on all four edges. The thickness varies according to the fancy of the specifying architect or, in stock panel doors with the practice of the manufacturer. The edge of the panel must, of course, be thin enough to enter the plowed groove in the edge of the stile. This groove is from 5/16 inch to 3/8 inch.

RETURN—The continuation of any moulding or any piece of finish in a different direction, which is usually at right angles. A stair tread is said to be returned when it is made with a miter cut at the end of the nosing on the front edge and a piece planted on the end to represent a continuation of the nosed edge across the end. In this way the end wood is covered and a much neater job is possible. The crown or bed moulding under the face projection of the drip cap of a "crown mould cap" frame is always mitered and "returned" against the siding. The usual purpose of a return of this kind is to obviate the necessity of end wood exposure.

RETURN BEAD—A moulding with two flat surfaces at right angles with each other and a projecting bead, nearly full round and of a diameter of approximately one inch. This moulding was formerly used for finishing between the corner boards on the corners of houses, but has been used but little during the last ten or twelve years. It is a standard moulding, however, is carried in stock by most of the wholesale millwork warehouses and by some lumber yards. It is No. 7071 of the Simplified Practice Recommendations.

SASH—A frame of wood, or possibly of other material, into which a pane, or panes, of glass may be set, for use in the walls of a building to provide for the entrance of sunlight, and to act at the same time as a barrier to the escape of heat and to the entrance of such other forces as would interfere with the comfort and safety of the occupants. This wood frame is made of sash stock and by the use of bars may be divided into any number of lights which are usually rectangular in shape, but which, by the use of curved bars, may be shaped to suit the fancy of the user. In sash construction the glass is held in place by means of flat tacks called glazier points and the glass bed is then filled with putty which is pressed in tightly around and over the edge of the glass, making the glass installation weather tight. A sash without glass is called an "open sash" and after glass is inserted it is called a "glazed sash."

SASH BALANCE—Any sash that slides up and down usually requires some kind of a balance. The old style plain rail window was held open by means of a prop or sash bolt, but the more modern window must be balanced, either by weights or by springs. The term "balance" is invariably applied to the spring type, in which the spring is enclosed in a metal case which is installed either on the top of the head jamb or in the side jambs at points approximately the same as the location of the common weight pulleys. These spring balances are connected with the sash by means of a steel tape which lies flat against the side jamb. The tape is fastened to the edge of the sash so that both tape and spring are completely out of the way.

SASH CHAIN—Chain used in place of sash cord. It is durable, strong, and does not kink or twist. Comes in several sizes and finishes. The smallest size is strong enough for any window in the ordinary home.

SASH CORD—Cord or rope made especially for the balancing of weights with the sash in check rail windows. Since it operates over pulleys in the frame and the weights sometimes rub against the sides of the weight box, sash cord must always be braided. Sash cord can be had in sizes that vary from 3/16 inch to 3/8 inch and of various weights according to the following table—

No.	Size inches	Approximate length per pound	Suitable for Weights of
6	3/16	66 feet	Less than 5 pounds
7	7/32	55 feet	5 to 15 pounds
8	1/4	44 feet	15 to 25 pounds
9	9/32	36 feet	25 to 35 pounds
10	5/16	27 feet	35 to 45 pounds
12	3/8	20 feet	Heavier than 45 pounds

SASH STOCK—This term indicates the various items of linial stock that are used for cutting into lengths suitable for the stiles, rails, bars and muntins of windows and sash. The stile and rail lengths are manufacturer in three thicknesses —1 1/8, 1 3/8 and 1 3/4 inches.

SCREWED AND GLUED—A door or other piece of flat wood work made of two or more piles which are glued together flatwise and screws put in for additional security.

SCRIBING—Fitting woodwork to an irregular surface.

SHOE RAIL—A strip of lumber of no set size but frequently approximating the size of a two by four, which is grooved on the top to receive the balusters of a balustrade. The bottom rail of a porch balustrade is usually made in this way. A curb string stair uses a grooved shoe for the top member of the box which forms the curb string.

SIDE OF TRIM—A side of trim consists of all the finish required to trim an opening in a wall, such as a window or sash or one side of a door opening. When two or more windows are built into one frame the trim is designated in the same way as the frame, that is—1 side twin window trim, 1 side triple window trim, etc. Whether the opening is a window or sash should always be indicated so that there may be no confusion as to size. If the opening is a sash the description should be I side sash trim, 1 side triple sash trim, etc. The size may be given in terms descriptive of the window such as—1 side window trim 24x24 2 light check, or it may be given for the opening as—1 side window trim opening 2 ft. 4 in. by 4 ft. 6 in. If the opening is a door the size of the door will indicate the side of trim. The description of the trim itself should include reference to a detail of all the members, including the stops, if for window or sash, but omitting stops if for a door. In figuring door trim, since only one set of stops is necessary where two sides of trim are usually used, it is customary to include them with the jambs. The description of trim should always include the kind of wood to be used.

SOLID STICKING—Where the sticking of the door is run solid on the edge of the stiles and rails and not planted on as is the case with "flush moulded" doors. It happens that defective panels are sometimes taken out by cutting off the solid sticking on one side of the door. The replacement panel is then held in place by means of a moulding planted on in place of the solid sticking.

SPECIAL MILLWORK—Any item of woodwork or millwork manufacture that has features which distinguish it from items of stock manufacture should be termed "Special." Any items that cannot be put through the mill in stock quantities or that does not have enough demand to justify stock quantity production is also "special." Special millwork and "made to order" millwork are practically the same and include all millwork items that cannot be classed as "stock." It must be noted that items that are "special" in one mill need not necessarily be "special" in another and this depends largely upon capacity and equipment.

SPLIT—A split is a lengthwise separation of the wood, due to the tearing apart of the wood cells. There are three sizes or degrees: "Short split," "Medium split" and "Long split."

SPLIT COLUMN OR NEWEL—In the porch material of the early part of the century columns and newels were an important item. Half columns and often half newels were placed against the building to receive the rail of a porch or porch deck.

STAIR-WORK—All of the mill-work material which is used in the building and finishing of a flight of stairs. In estimating, the stair jacks are not considered stair-work for the reason that they are not of hard-wood and are usually made by the carpenter on the job. The stair-work is smoothed, sanded and ready for the varnish finish.

STANDING FINISH—Same as "Standing trim."

STANDING TRIM—A term that is sometimes used to indicate the trim for windows and doors. Rather indefinite and confined to certain localities.

(Continued on Page 134)

AETNA FRAMES

HINGES ARE WELDED TO FRAMES

ONE-PIECE · ALL-WELDED STEEL CONSTRUCTION

PRIME COATED AT FACTORY

BRASS STRIKE PLATE WITH DUST BOX ATTACHED

MORE PERMANENT MORE WEAR RESISTANT

INSTALLED IN LESS TIME AND AT LOWER COST THAN MULTIPLE UNIT FRAMES

STEEL PRODUCTS CORPORATION

AETNA STEEL PRODUCTS CORPORATION

Manufacturers of Quality Hollow Metal Doors, Trim and Elevator Enclosures

Executives Offices: 61 Broadway, New York 6, N. Y.

Windows, Doors, Millwork

(Continued from Page 130)

STARTING RISER—The first riser at the foot of the stair. In common construction the riser is straight and rests upon the floor below the starting tread. See "Circle and tread."

STILE AND RAIL DOOR—Any door in which the visable framework is made up of some combination of stiles and rails. The spaces between stiles and rails are either wood panels or glass.

STOCK MILLWORK—Woodwork which is carried in stock and ready for shipment. It should not be assumed that everything that is listed or illustrated in a millwork catalogue is stock. Illustrations are often used to assist in selection. Neither should it be assumed that everything that carries a list price is stock material and can be furnished at the regular discount. A different discount may apply to two closely related articles, one of which is too slow moving to justify manufacturing in stock quantities. Some wholesale warehouses issue a separate stock list and some make some other indication as to which is stock and which is non-stock.

STOCK QUANTITY—Wholesale millwork warehouses charge extra for "odd" or "special" windows and doors but will usually furnish the same items at regular prices if ordered in quantities which are indicated. These "stock quantities" vary with different warehouses and to some extent with different articles.

STOCK SHEET—A list of articles and sizes that are carried in stock.

STOCK SIZES—It is impossible for any millwork warehouse to carry all listed sizes of doors and windows in stock. "Stock sizes" are usually indicated for the convenience of the trade, either in the catalogue itself or on a specially issued "Stock sheet."

STOOL—The Stool is that horizontal member of a side of window or sash trim that extends from the bottom rail of a window or sash toward the inside of the wall and covers the inside edge of the sill of the frame. In a masonry wall it not only covers the inside edge of the sill of the frame but also the masonry course between the frame and the inside surface of the wall. The common household name for this member is "window sill." It provides a horizontal stop.

STORM DOOR—A door 1⅛ inches in thickness which is set into an exterior opening between the jambs and flush with the outside casing. They are made either all panel with no glass or they may be part panel with one or more lights in the upper part. They are useful in winter to provide a better barrier to cold air and drafts than is possible with a single door. They set in the same space as the screen door which they replace when the screen door is no longer necessary. Like the screen door they are made from ½ inch to one inch over size all around to allow for the set-back and shrinkage of the casing as well as for the use of a threshold.

STORM SASH—A single sash, full size of the frame, which is installed flush with the outside casing of the window frame of a frame building or flush with the brick moulding of the window frame of a masonry building. Since storm sash are for winter use and occupy the same place as full sized window screens, it is customary to make the installation when removing the screens in the fall and then replace them with the screens again in the spring.

THRESHOLD—A piece of wood about ⅝ inch by 3⅝ inches, usually of oak, beveled both edges, to be placed on the floor underneath the closed interior door, to close the space. A door must, of course, be fitted with floor clearance for swinging, and in the days before the use of heating plants that heated all rooms, some rooms were kept closed in winter, either for economy or because the old time stoves were unequal to the task. Of course the space below the closed door had to be filled and that required a threshold. In those days every door in the house was fitted with a threshold but in these later days only exterior doors require them.

WAINSCOT CAP—While almost any design of base cap could be used as a wainscot cap provided the rabbet was of the right size to match the thickness of the wainscot, there was one pattern which was popular and which is still carried in stock in some warehouses. Its size is ¾ inch by 2½ inches but being in the form of a sprung moulding it will still fit nicely over a ¾ inch wainscot.

WATER DRIP—A moulding which is grooved into the bottom rail of a sash and projecting away from it, to turn the water away from the bottom edge. It is carried in stock in wholesale warehouses in one size only—¾ inch by 1½ inches. It is of soft wood, usually ponderosa pine.

WEATHER STRIPS—Weather strips are usually strips of thin metal so fitted to the outside edges of a door or a window, or to the jambs of a door or window frame, that when the door or window is in a closed position the crack that is necessary for easy operation is completely closed. Strips of felt are sometimes used but the felt often interferes with the opening or closing of the door or window and lacks the permanency that is desirable. Practically all of the most recently built factory window frames use weather strips of one design or another.

WINDOW STOP—Window stops are strips of wood which are fastened to the jambs of a window frame to hold the window in place.

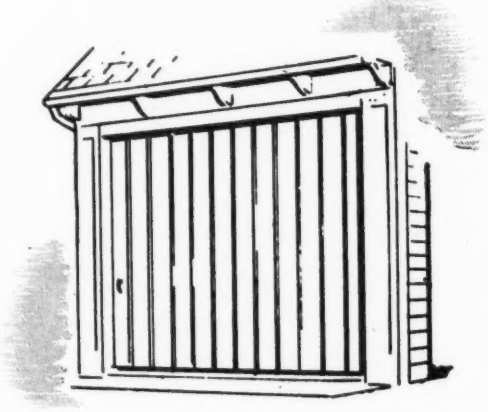
(Door and Window Charts on Pages 138, 140, 142)

ALUMINUM

SELLING PLANS

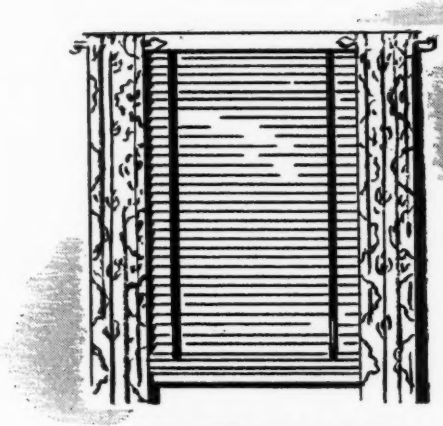
LONG-LASTING—NONSTAINING

Fifteen years of research went into developing screening made of Alcoa Alclad Aluminum. Because this longer wearing screen cloth can't rust, can't stain, never needs painting, homeowners are demanding all that can be produced. As leading weavers increase production, you'll be seeing and selling more screen cloth of Alcoa Alclad Aluminum.



GARAGE DOORS

When your customers ask for a garage door that's easy to open and built to last, sell an aluminum door. There are years of satisfaction in doors of Alcoa Aluminum. They can't rust, rot or warp; never need costly maintenance.



VENETIAN BLINDS

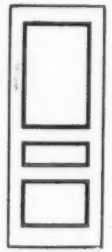
There's more satisfaction for your customers—and you—when you sell aluminum venetian blinds. Slats of Alcoa Aluminum won't split or crack. They never rust or stain; stand up under steady use, won't warp in heat or dampness.

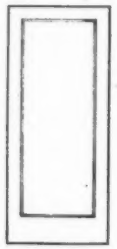
ALCOA ALUMINUM

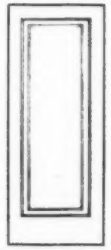
ALCOA
A C
ALUMINUM
O A

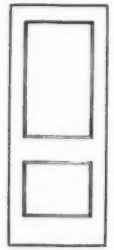
STOCK PONDEROSA PINE AND HARDWOOD VENEERED DOORS

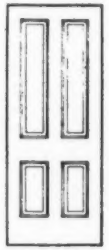
POPULAR PATTERNS OF INTERIOR DOORS

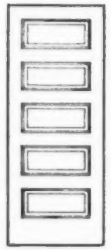

N.D. 99
THREE PANEL

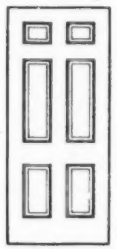

N.D. 100
ONE PANEL

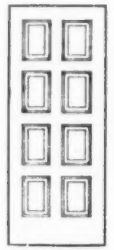

N.D. 101
INNER FRAME


N.D. 102
TWO PANEL


N.D. 106
FOUR PANEL


N.D. 107
FIVE CROSS PANEL


N.D. 108
SIX PANEL COLONIAL


N.D. 109
EIGHT PANEL

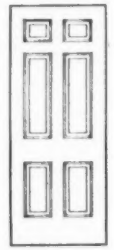
CONSTRUCTION DETAILS

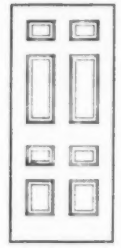
Design No. N.D. 99	Stiles 3¾"	Top Rail 4¾"	Cross Rail 4⅝"	Lock Rail 4⅝"	Intermediate Rails	Mullions or Muntins	Bottom Rail 9⅝"	Panels Flat
N.D. 100	4¾"	4¾"	.....	.....	.....	.....	9⅝"	Flat
N.D. 101	4¼" Face	4¼" Face	.. ..	.....	.....	.....	9¼" or 9½" Face	Flat
N.D. 102	4¾"	4¾"	.....	.....	.....	.. ...	9⅝"	Flat
*N.D. 106	4¾"	4¾"	.....	8"	.....	4⅝"	9⅝"	Raised
*N.D. 107	4¾"	4¾"	.....	.....	4⅝"	.....	9⅝"	Raised
N.D. 108 (1)(2)(3)	4¾"	4¾"	.....	8"	3⅞" or 4⅝"	3⅞" or 4⅝"	9⅝"	Raised
N.D. 109(2)	4¾"	4¾"	...	....	3⅞" or 4⅝"	3⅞" or 4⅝"	9⅝"	Raised

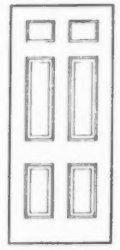
NOTES: (1) Height of Top Panels Overall 7⅛" (2) Doors 1'-6" are made 1 Panel Wide.
(3) Bottom and lock rails may be reversed when specified.
*Also for exterior use.

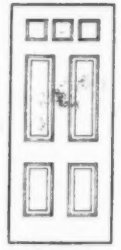
POPULAR SIZES				
1'-6" x 6'-6"	2'-0" x 6'-8"	2'-4" x 6'-8"	2'-6" x 6'-8"	2'-8" x 6'-8"
1'-6" x 6'-8"	2'-0" x 7'-0"	2'-4" x 7'-0"	2'-6" x 7'-0"	2'-8" x 7'-0"
2'-0" x 6'-0"	2'-4" x 6'-0"	2'-6" x 6'-0"	2'-8" x 6'-0"	3'-0" x 6'-8"
2'-0" x 6'-6"	2'-4" x 6'-6"	2'-6" x 6'-6"	2'-8" x 6'-6"	3'-0" x 7'-0"

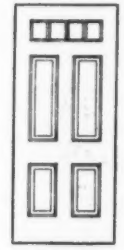
POPULAR PATTERNS OF EXTERIOR DOORS

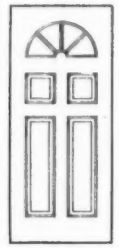

N.D. 110
SIX PANEL
COLONIAL

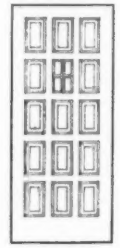

N.D. 112
EIGHT PANEL
COLONIAL

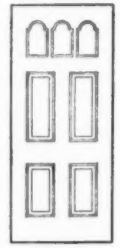

N.D. 596
4 Panel Below
2 Light


N.D. 597
4 Panel Below
3 Light

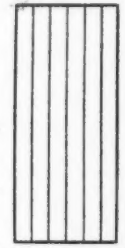

N.D. 598
4 Panel Below
4 Light


N.D. 600


N.D. 605


N.D. 606

PLAIN FLUSH


FLUSH "V" GROOVED

POPULAR SIZES: 2'-6" x 6'-8", 3'-0" x 6'-8", 3'-0" x 7'-0"

CONSTRUCTION DETAILS

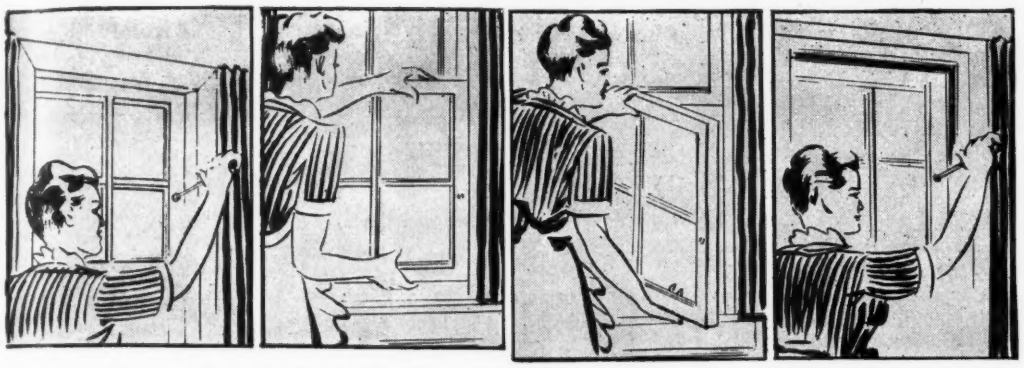
Design No.	Stiles	Top Rail	Cross Rail	Lock Rail	Intermediate Rails	Mullions or Muntins	Bottom Rail	Panels	Glass Size for 2'-6" x 6'-8" Door
*N.D. 110(1)	5½"	5½"	. .	8"	5⅜"	5⅜"	9⅝"	Raised	.. ..
*N.D. 112(1)	5½"	5½"	...	8"	5⅜"	5⅜"	9⅝"	Raised	.....
*N.D. 596(2)	5½"	5½"	5⅜"	8"	..	5⅜"	9⅝"	Raised	8¾" x 7⅛"
*N.D. 597(2)(3)	5½"	5½"	5⅜"	8"	....	5⅜"	9⅝"	Raised	5¾" x 7⅛"
*N.D. 598(2)(4)	5½"	5½"	5⅜"	8"	....	5⅜"	9⅝"	Raised	5⅛" x 7⅛"
N.D. 600	*5½"	5½"	Top 5⅜"	. . . . ..	4⅝"	4⅝"	9⅝"	Raised	22" x 11"
N.D. 605	4¾"	4¾"	2⅝"	.. . . .	....	2⅝"	9⅝"	Raised	6¾" x 11⅜"
*N.D. 606(5)	5½"	5½"	5⅜"	8"	...	5⅜"	9⅝"	Raised	6¾" x 9"
Flush Plain	If desired, light openings may be cut in these doors to suit wishes of purchaser.								
Flush "V" Grooved	If desired, light openings may be cut in these doors to suit wishes of purchaser.								

NOTES: (1) Panel thickness ¾". Height of top panel over-all 7⅛" (2) Panel thickness ¾". (3) Bars between glass 3½". (4) Bars between glass 1½". (5) Bars between glass 1½" to 3½"
*Bottom and lock rails may be reversed when specified.

OTHER PONDEROSA PINE STOCK DOORS AVAILABLE

No attempt has been made in this catalog to illustrate all the types and patterns of Ponderosa Pine standard stock doors that are available. Only the more popular patterns of interior doors, exterior doors and combination doors are shown. For data on other types and designs, including garage doors, cupboard doors, storm doors, toilet doors, blind or summer doors and sidelights write the National Door Manufacturers Association, 322 South Michigan Avenue, Chicago 4, Illinois.

Change from Dirty Windows to Clean in 4 Easy Steps



1. Raise lower sash to top of unit. Hold sash up while insert locks are released with quarter turn of screw driver.

2. Slide sash down until below left hand guide strip. Push sash to left until right side clears window stop.

3. Swing right side of sash in until clear of inside casing, and remove.

4. To remove top sash, follow same instructions as bottom sash. To replace either sash, reverse the procedure.

- Removable From Inside
- Perfect Overhead Balance
- Safe—No More Ladders
- Simplifies Window Washing
- Completely Weatherstripped
- Combines Combination Screen and Storm Sash For Northern Territories
- Economical—All Factory Fit —No On-the-Job Fitting

MIRACLE WINDOW UNITS

PATENTED AND PATENTS PENDING

by MARQUART MILLWORK CO.

Oshkosh, Wisconsin

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PRIMELESS PUTTY

If you are seeking a better product, faster running, quicker initial set, and firm adherence, at a fair price, then investigate our Primeless Par Excellence.

LANDEN PUTTY WORKS

45 Irving St.

MALDEN, MASS.

MILLMEN AND BUILDERS ALIKE PREFER THE *Exclusive Features* OF

ROCHESTER SPIRAL SASH BALANCE

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Fastest to install — no mortises or other cutouts necessary—only standard milled groove space—no stop blocks—requires no adjusting — pre-tensioned at factory . . . Eliminates unsightly and noisy weights, pulleys, cords, chains, tapes, tubes — nothing to interfere with painting . . . Saves fuel because it is weathertight with no pulley holes or weight boxes — sash stile grooves covered top and bottom . . . Accelerated spiral gives perfect, quiet action — guaranteed for life of building.

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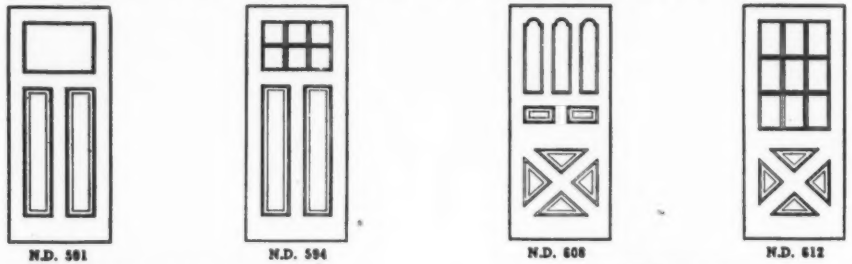
MILWAUKEE STAMPING COMPANY

848B SOUTH 72ND STREET
MILWAUKEE 14, WISCONSIN

STOCK PONDEROSA PINE AND HARDWOOD VENEERED DOORS

POPULAR PATTERNS OF EXTERIOR DOORS



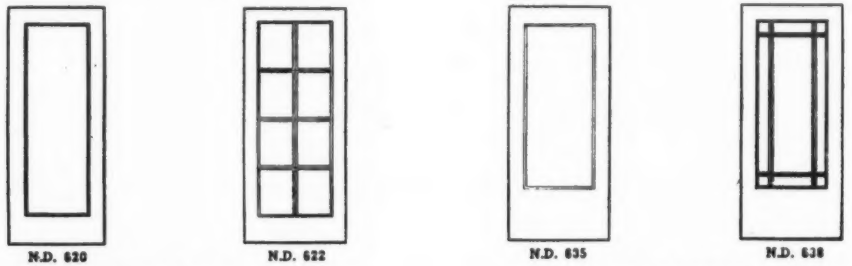
N.D. 591 N.D. 594 N.D. 608 N.D. 612

Above 1 light design N.D. 591 can be divided as in Design N.D. 594 or other divisions are available as listed below:

N.D. 592—3 vert. lts.
N.D. 593—4 vert. lts.

POPULAR SIZES

Nos. N.D. 591, 594, 608, 612
2'-8" x 6'-8", 3'-0" x 6'-8", 3'-0" x 7'-0"



N.D. 620 N.D. 622 N.D. 635 N.D. 638

Above 1 light design N.D. 620 can be divided as in Design N.D. 622 or other divisions are available as listed below.

N.D. 623— 9 marg. lts.
N.D. 625—10 lts., 2 w.
N.D. 626—12 lts., 3 w.
N.D. 627—15 lts., 3 w.
N.D. 630— 5 hor. lts.

POPULAR SIZES

Nos. N.D. 620, 622
2'-0" x 6'-8", 2'-6" x 6'-8", 2'-8" x 6'-8"

Above 1 light design N.D. 635 can be divided as in Design N.D. 638 or other divisions are available as listed below:

N.D. 636— 3 vert. lts.
N.D. 637— 8 lts., 2 w.
N.D. 640—10 lts., 2 w.
N.D. 641—12 lts., 3 w.
N.D. 642—15 lts., 3 w.
N.D. 644— 5 hor. lts.

POPULAR SIZES

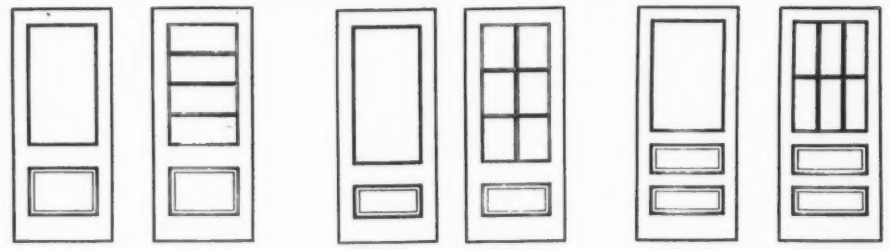
Nos. N.D. 635, 638
2'-8" x 6'-8", 3'-0" x 6'-8", 3'-0" x 7'-0"

CONSTRUCTION DETAILS

Design No.	Stiles	Top Rail	Cross Rail	Lock Rail	Intermediate Rails	Mullions or Muntins	Bottom Rail	Panels	Glass Size for 2'-8" x 6'-8" Door
N.D. 591(1)	4¾" or 5½"	4¾" or 5½"	4⅝" or 5⅜"	.....	.....	4⅝" or 5⅜"	9⅜"	Raised	22" x 18"
N.D. 594(1)	4¾" or 5½"	4¾" or 5½"	4⅝" or 5⅜"	.....	.....	4⅝" or 5⅜"	9⅜"	Raised	7" x 8¾"
N.D. 608(2)	4¾"	4¾"	4⅝"	9⅜"	.....	4⅝"	8¾"	Raised	6⅛" x 26⅞"
N.D. 612(3)	5½"	5½"	.....	7"	.....	5⅜"	8¾"	Raised	7" x 12"
*N.D. 620	4¾"	4¾"	.....	.....	.....	.....	9⅜"	.....	23½" x 66½"
*N.D. 622	4¾"	4¾"	.....	.....	.....	.....	9⅜"	.....	11½" x 16¼"
N.D. 635	5½"	6½"	.....	.....	.....	.....	18½"	.....	22" x 56"
N.D. 638	5½"	6½"	.....	.....	...	.....	18½"	.....	5" x 5" (Cor. lts.)

NOTES: (1) Glass sizes shown are for doors with 5½" stiles. (2) Panel thickness 1⅛". Bars between glass 3½" (3) Panel thickness 1⅛"
*Also for interior use.

POPULAR PATTERNS OF EXTERIOR DOORS



N.D. 500 N.D. 506 N.D. 507 N.D. 508 N.D. 514 N.D. 516

Above 1 light design N.D. 500 can be divided as in Design N.D. 506 or other divisions are available as listed below:

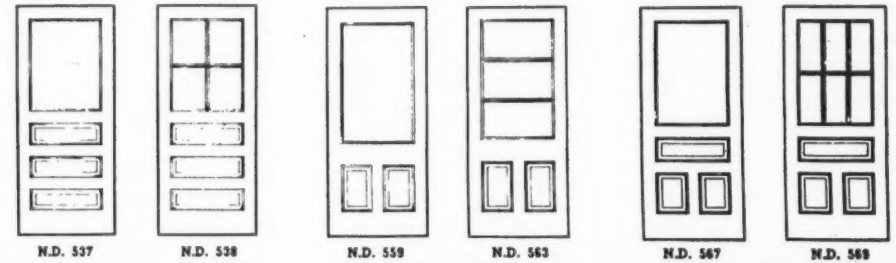
N.D. 501— 6 lts., 2 w.
N.D. 502— 9 lts., 3 w
N.D. 505 12 lts., 3 w

Above 1 light design N.D. 507 can be divided as in Design N.D. 508 or other divisions are available as listed below:

N.D. 509 - 9 lts., 3 w.
N.D. 510— 8 lts., 2 w.
N.D. 511— 9 marg. lts.
N.D. 512 12 lts., 3 w.

Above 1 light design N.D. 514 can be divided as in Design N.D. 516 or other divisions are available as listed below:

N.D. 513— 3 hor. lts.
N.D. 515— 4 lts., 2 w.
N.D. 517— 9 lts., 3 w.
N.D. 519— 3 vert. lts.



N.D. 537 N.D. 538 N.D. 559 N.D. 563 N.D. 567 N.D. 569

Above 1 light design N.D. 537 can be divided as in Design N.D. 538 or other divisions are available as listed below:

N.D. 536—3 hor. lts
N.D. 539—6 lts., 3 w
N.D. 542—3 vert. lts.

Above 1 light design N.D. 559 can be divided as in Design N.D. 563 or other divisions are available as listed below:

N.D. 560—4 lts., 2 w.
N.D. 561—6 lts., 2 w.
N.D. 562 - 9 lts., 3 w.

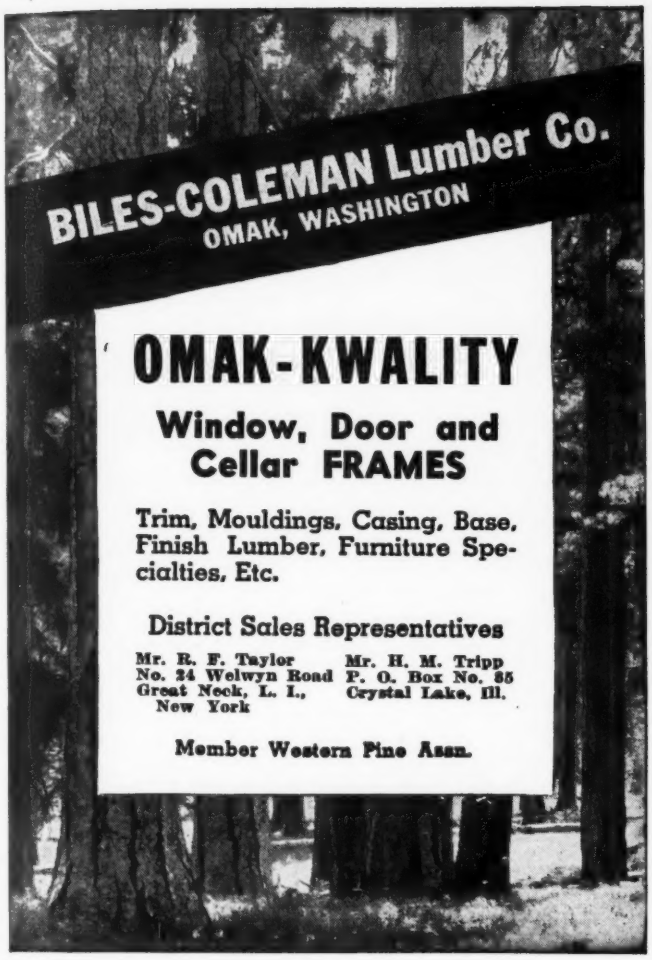
Above 1 light design N.D. 567 can be divided as in Design N.D. 569 or other divisions are available as listed below:

N.D. 568—4 lts., 2 w.
N.D. 570—9 lts., 3 w.

CONSTRUCTION DETAILS

Design No.	Stiles	Top Rail	Cross Rail	Lock Rail	Intermediate Rails	Mullions or Muntins	Bottom Rail	Panels	Glass Size for 2'-8" x 6'-8" Door
*N.D. 500	5½"	5½"	.....	9⅜"	.....	.....	9⅜"	Raised	22" x 40"
*N.D. 506	5½"	5½"	.....	9⅜"	.....	.....	9⅜"	Raised	22" x 9⅜"
*N.D. 507	5½"	5½"	.....	9⅜"	.....	.....	9⅜"	Raised	22" x 46"
*N.D. 508	5½"	5½"	.....	9⅜"	.....	.....	9⅜"	Raised	10¾" x 15"
N.D. 514	4¾"	4¾"	.....	4⅝"	4⅝"	.....	9⅜"	Raised	23½" x 36"
N.D. 516	4¾"	4¾"	.....	4⅝"	4⅝"	.....	9⅜"	Raised	7½" x 17¾"
N.D. 537	4¾"	4¾"	4⅝"	.....	.....	.....	9⅜"	Raised	23½" x 30"
N.D. 538	4¾"	4¾"	4⅝"	.....	.....	.....	9⅜"	Raised	11½" x 14¾"
N.D. 559	4¾"	4¾"	.....	8"	.....	.....	9⅜"	Raised	23½" x 40"
N.D. 563	4¾"	4¾"	.....	8"	.....	.....	4⅝"	Raised	23½" x 13"
N.D. 567	4¾"	4¾"	4⅝"	.....	.....	.....	4⅝"	Raised	23½" x 34"
N.D. 569	4¾"	4¾"	4⅝"	.....	.....	.....	4⅝"	Raised	7½" x 16¾"

POPULAR SIZES: Nos. N.D. 500, 506, 507, 508 are 2'-8" x 6'-8", 3'-0" x 6'-8", 3'-0" x 7'-0"
Nos. N.D. 514, 516, 537, 538, 559, 563, 567, 569 are 2'-5" x 6'-6", 2'-8" x 6'-8", 3'-0" x 6'-8", 3'-0" x 7'-0"
*8" Lock Rail furnished when specified.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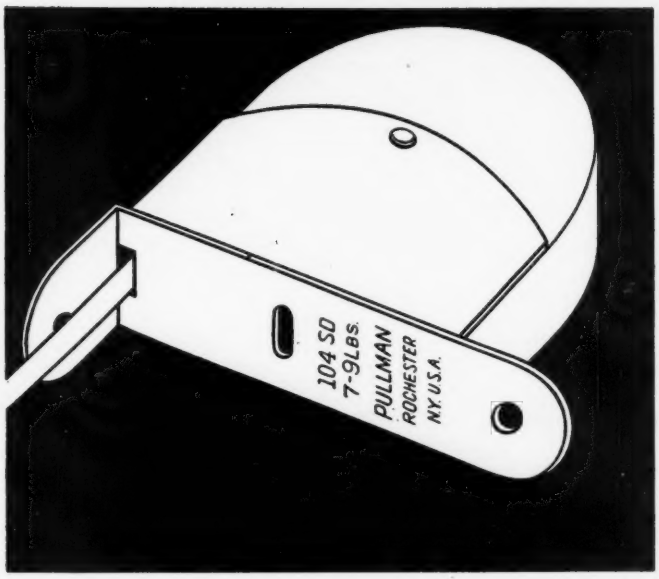


FOR LOWER COSTS

...AND BETTER CONSTRUCTION

● To meet 1947 demand for residential housing, construction must be *sound,* must offer *most-house-for-least-money.*

One sure way to save man-hours of labor and improve quality of construction is through use of modern pre-fit window sash-and-frame units.

Among the best of such window units are those, built by most leading millwork manufacturers, incorporating Pullman Sash Balances. The Pullman balance offers true *counterbalancing.* It is a compact, space-saving unit, built to quality standards, guaranteed to serve for the life of the building into which it is installed. *Pullman Manufacturing Corp., Rochester, New York.*

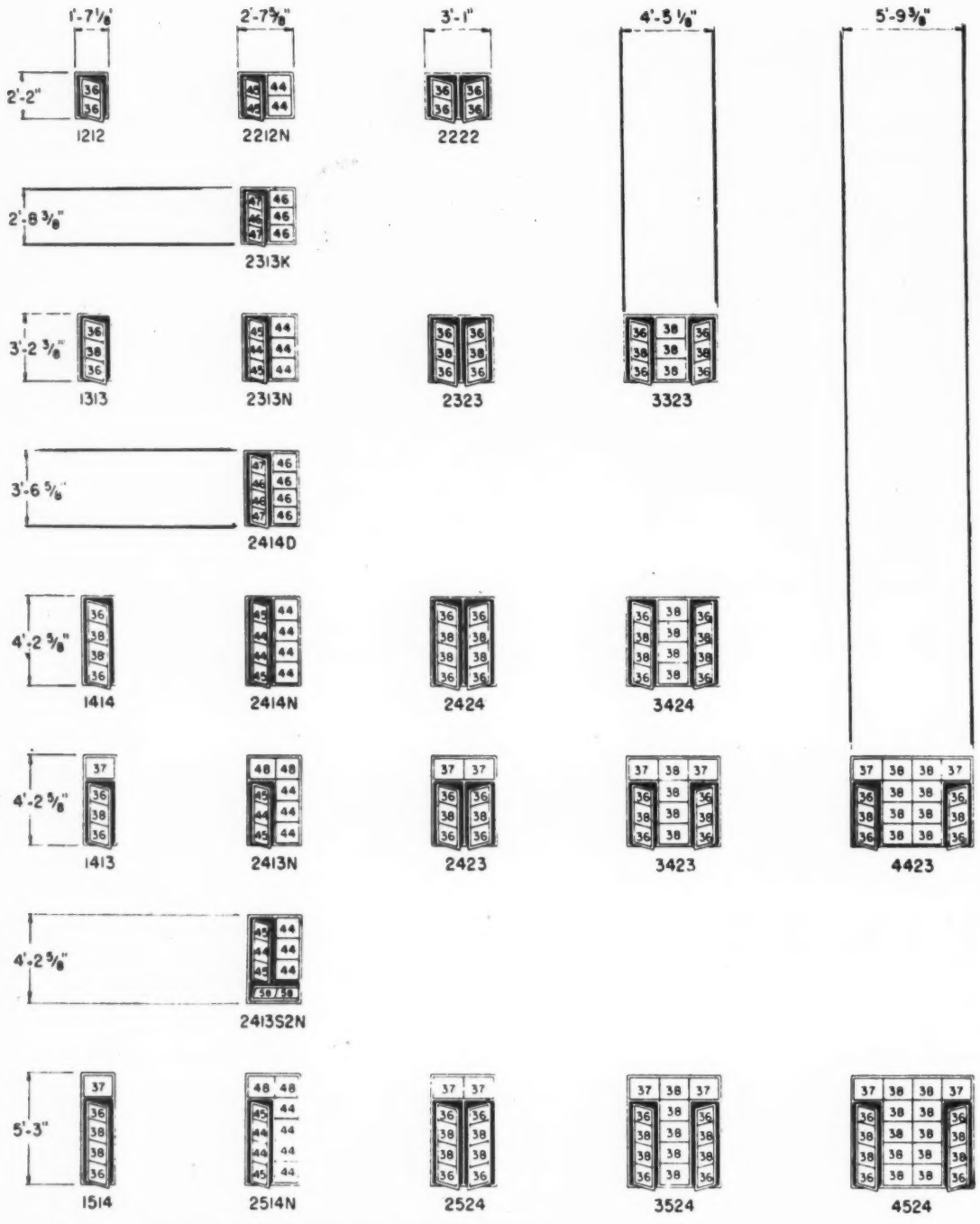
PULLMAN
Sash Balances

NOTES: (1) Glass sizes shown are for doors with 5½" stiles. (2) Panel thickness 1⅛". Bars between glass 3½". (3) Panel thickness 1⅛". *Also for interior use.

Nos. N.D. 514, 516, 537, 538, 559, 563, 567, 569 are 2'-6" x 6'-6", 2'-8" x 6'-8", 3'-0" x 6'-8", 3'-0" x 7'-0"
"S" Lock Rail furnished when specified.

METAL RESIDENCE CASEMENTS

Types and Sizes Approved by the Metal Window Institute to Conform to Postwar Modular Coordination in Building Design.



33111
BULLS-EYE

Additional types and sizes available in states of Washington, Oregon, Idaho, California, Arizona, Utah and Nevada.

GLASS SCHEDULE		
MARK	W	H
36	16	11 5/16
37	17 ¼	12
38	16	12
44	14	12
45	14	11 5/16
46	14	10
47	14	9 5/16
48	14 ¾	12
49	12	12
58	14	10 ⅜
T	TEMPLATE	

ALL TYPES SHOWN ARE FURNISHED IN FIXED TYPES.

All ventilators swing out (except the sill vent shown) and are furnished with either Lever or Roto type underscreen hardware, permitting the opening of the screened window without touching screens.

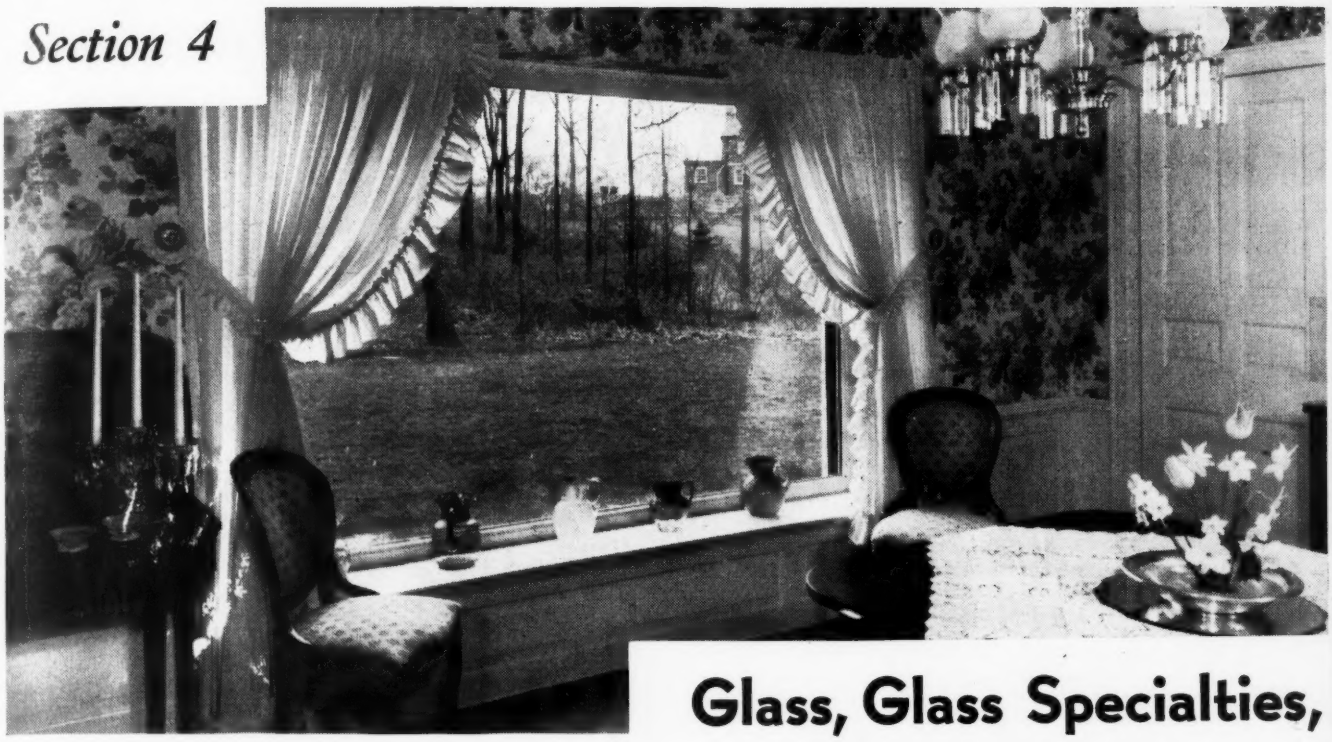
Sizes shown are window dimensions. For opening dimensions of single units add ¼". When more than one unit is used for a multiple window opening add actual unit dimensions plus ¼" for each mullion used, and ¼" to total thus arrived.

Indicate by suffix L or R whether ventilators are left or right hand. All casements are viewed from outside. Handing is determined by location of hinges. A left hand casement will have hinges on left when viewed from outside.

All windows to be set in mastic furnished by window erector.

Units shown are standard warehouse types in fixed and ventilated types. Vertical muntins will be furnished at slight extra cost, but as factory shipment only.

Section 4



Glass, Glass Specialties, Plastic Glazing

CONTENTS OF THIS SECTION

Window Glass
Plate Glass
Mirrors
Tempered Plate Glass
Structural Glass
Laminated Safety Glass
Patterned and Wire Glass
Glass Blocks
Miscellaneous

For Related Sections See Master Index

Of all the many items handled by retail Lumber and Building Material Dealers perhaps only the common brick has an older history than does glass. Since the day, thousands of years ago, when the first crude glass was made, probably by the Phoenicians, it has been advanced steadily in form, quality, and useability.

The art of glass making spread to Europe and moved to America in the early 17th century. The first manufacturing venture in the new world produced glass in Jamestown, Virginia, before the Pilgrims landed at Plymouth Rock.

Since then, progress in glass making has been steady; in the last decades, spectacular. In the manufacture of flat glass old hand methods were replaced by machine processes and, finally, there came mass production methods which turned out flat glass of such high quality and in such quantities that it has become an item of constant and universal use.

Flat glass is now such an important part of our modern way of life that it is almost always within sight of reach of all of us wherever we may be—at home or at work, in church or school, in auto or bus or train or airplane, in the city or town or on the farm. It is difficult to imagine a structure of any consequence which does not involve flat glass in some form in its construction or maintenance.

It is only natural, then, that flat glass has become part of the stock-in-trade of the retail lumber and building material dealer, and is becoming an item of ever increasing importance from the standpoint of both new construction and replacement.

There are two main factors which are bringing this about. First, there is the unprecedented amount of new construction underway and planned for the future. Secondly, there is a definite trend toward the increased use of glass areas in each building unit.

New home designs call for more windows and larger windows than ever before. This is especially true in the new solar houses in which whole south walls are of glass.

The general acceptance of the Visual Front, by which commercial buildings are "opened up" to the view of passing prospects, has greatly increased the area of plate glass required in that important field.

"Daylight Engineering" which applies the latest technical skill of glass manufacturer and distributor, architects, engineers, and designers to the problems of the natural illumination of factories, schools, hospitals, and public buildings, is bringing about the increased use of glass in those types of buildings. All of these developments are stimulating immediate demand for initial sales and are increasing the already large replacement potential.

The handling of window glass has become almost traditional with lumber and building material dealers. Many also have been supplying the needs of their customers for other types of flat glass. However, a detailed knowledge of glass products and their most effective use, together with aggressive advertising, display, and merchandising, will enable the lumber and building material dealer to increase his volume in this growing field.

The following paragraphs contain simplified information on flat glass products and their application with some attention to the subject of displays and selling methods.

General Characteristics

Today there are many forms of flat glass, each one of which is made to perform a specific function and fill a definite need. There are, however, certain general characteristics which are common to all forms. In greatly simplified terms, all flat glass is composed of sand, soda, and lime, in varying proportions and with other supplementary ingredients depending on the type desired, fused at high temperature, and drawn or cast into flat sheets. All glass is unaffected by moisture, rust, and decay of all kinds. Its polished surface is unmarred by liquids, alkalies, alcohol, and almost all acids. Its finish is hard, lasting, sanitary, easy to clean.

WINDOW GLASS

The "old standby" of the lumber and building material dealer is window glass or flat drawn sheet glass. Yet many dealers who have been selling and installing window glass for years have not had time to pause and think about its fascinating history and bright future.

Window glass has a long past. Its first commercial form probably was what is known as crown glass. This product, far from perfect by today's standards, was made

by blowing a glass sphere, or bubble, on the end of a hand blow-pipe. By twirling the pipe while the glass was still soft, the bubble was spread by centrifugal force. From this shape, sheets were cut from the less curved areas and ironed in a hot oven. The result was expensive, contained many defects, produced marked visual distortion, and was never flat.

A step forward was made when the hand method was changed by swinging the bubble in a pit while lung-power was applied to the other end of the blow-pipe. This process resulted in a cylinder which was later reheated, split, and ironed. Cylinder glass was an improvement over crown glass. It gave a higher yield and was of better quality. Also larger sizes were available. But cylinder glass still distorted vision to a high degree because of the ironing process and it, too, was never flat.

Still later the cylinder process was modified by the introduction of machine blowing. This produced larger cylinders and increased output but the resulting glass was still subject to many of the defects of hand blown cylinder glass. Among other things, it was always bowed. This was especially troublesome to glaziers and installers for the bowed light of glass never laid flat along the sash rabbet. This caused excessive breakage.

By the beginning of the present century, many glass makers had decided that blown glass in any form had too many inherent defects to allow its being converted into window glass of the quality desired. Several men began the struggle to draw window glass in the flat state direct from a tank of molten glass. Foremost among these was Irving W. Colburn. Even Colburn, after exhausting his fortune on fifteen different machines over a period of several years, had not achieved the goal.

Finally, Michael J. Owens, sometimes spoken of as the Edison of the glass industry, and his associate, Edward D. Libbey, took over supervision of the development work. For an additional four years the research and experiments went on. At last, in 1916, the Libbey-Owens process, as it was known by then, was successful. For the first time window glass was drawn flat, by a continuous, automatic method, directly from its molten state in commercial quantities.

By the continuous flat-drawing process window glass can be made in much larger quantities than was the case with preceding methods. Furthermore, the quality is very greatly improved and controlled. There are fewer metal defects, such as seeds and bubbles and less distortion.

Because glass formed by the flat-drawing process travels without interruption through long lehrs, highly controlled chambers in which glass temperatures are slowly and uniformly reduced, it is freer from strain. It, therefore, cuts more easily and breakage is reduced. Old types of window glass, because they were bowed, were more prone to break in the sash, especially during glazing operations. This troublesome and expensive difficulty has been minimized with modern drawn window glass, due to its remarkable flatness.

Classification	Quality	Thickness in Inches	Approximate Wt. Sq. Ft. in Ozs.	Maximum Size Furnished
Window Glass				
Single Strength	"AA," "A," "B"	.087-.100	19.50	90 united in.
Double Strength	"AA," "A," "B"	.118-.133	26	120 united in.
Double Strength	Greenhouse	.118-.133	26	16″ x 18″ 16″ x 24″ 18″ x 20″
$\frac{1}{4}$″ Heavy Sheet	"AA," "A," "B"	.187-.205	40	50 sq. ft.
$\frac{3}{16}$″ Heavy Sheet	"AA," "A," "B"	.210-.230	45	60 sq. ft.
Picture Glass				
19-23 lts. per in.	"AA," "A," "B"	.043-.053	9 to 11	60 united in.
Picture Glass				
15-17 lts. per in.	"AA," "A," "B"	.058-.068	12 to 14	60 united in.
Picture Glass				
12-14 lts. per in.	"AA," "A," "B"	.070-.080	15 to 17	60 united in.

"AA" quality is specially selected glass for high grade work.

"A" is select glass of superior glazing quality.

"B" is suitable for general glazing purposes.

Greenhouse is below "B" in quality and is available in double strength only in sizes 16″ x 18″, 16″ x 24″, and 18″ x 20″.

United Inches are determined by adding the width and the length of the size involved. Thus a light 28″ x 28″ would have 56 united inches.

PACKING

Window glass of 100 united inches and less is packed approximately 50 sq. ft. per box; over 100 united inches approximately 100 sq. ft. per box.

USES

Window glass for glazing windows, doors and storm sash in houses, apartments, and other types of buildings.

Heavy sheet glass for glazing windows and doors where greater strength is required but where slight distortion is not objectionable for shelving, display cases, window ventilators, and furniture tops.

Picture glass for covering pictures, photographs, maps, and prints.

PLATE GLASS

In the case of window glass, described above, the two surfaces remain unchanged, just as they come from the machine, with a fire polish. Plate glass, on the other hand, is first made into blanks either by being cast in its molten state from large clay pots or rolled in a continuous sheet from a tank. These blanks, which are usually ribbed, are then ground and finally polished on both surfaces with the objective of making them flat and parallel. This results in clear vision and a minimum of distortion.

TYPES OF PLATE GLASS

Types of plate glass in general use are as follows:

1. Regular plate
2. Color clear plate
3. Colored plate
4. Heat absorbing plate (to be discussed later)

Thicknesses, sizes, and weights of various types (except heat absorbing) are shown in the table below:

Type or Color	Thickness	Thickness Tolerance	Standard Maximum Width and Length	Maximum Size Special Order	Approx. Weight Lbs. Per Sq. Ft.
Regular	$\frac{1}{8}$″	± $\frac{1}{32}$″	72″ x 74″	74″ x 144″	1.64
	$\frac{13}{64}$″	± $\frac{1}{32}$″	72″ x 74″	74″ x 144″	2.65
	$\frac{1}{4}$″	± $\frac{1}{32}$″	124″ x 170″	124″ x 250″	3.27
	$\frac{3}{16}$″	± $\frac{1}{32}$″	100″ x 150″	100″ x 200″	4.90
	$\frac{1}{2}$″	± $\frac{1}{32}$″	100″ x 160″	100″ x 200″	6.54
	$\frac{5}{8}$″	± $\frac{1}{32}$″	80″ x 140″	100″ x 160″	8.17
	$\frac{3}{4}$″	± $\frac{1}{32}$″	80″ x 130″	100″ x 150″	9.81
	$\frac{7}{8}$″	± $\frac{1}{32}$″	40″ x 100″	50″ x 100″	11.44
	1″	± $\frac{1}{32}$″	40″ x 100″	50″ x 100″	13.08
	1$\frac{1}{4}$″	± $\frac{1}{32}$″	40″ x 100″	50″ x 100″	16.25
Color Clear	$\frac{1}{8}$″	± $\frac{1}{32}$″	40″ x 80″	55″ x 90″	1.64
	$\frac{1}{4}$″	± $\frac{1}{32}$″	70″ x 140″	90″ x 140″	3.27
Colors:					
Standard Blue	$\frac{1}{4}$″	± $\frac{1}{32}$″	100″ x 140″	110″ x 170″	2.86
Medium Blue	$\frac{1}{4}$″	± $\frac{1}{32}$″	100″ x 140″	110″ x 170″	2.86
Dark Blue	$\frac{1}{4}$″	± $\frac{1}{32}$″	100″ x 140″	100″ x 170″	2.86
Peach	$\frac{1}{4}$″	± $\frac{1}{32}$″	100″ x 140″	100″ x 170″	2.86
Golden	$\frac{1}{4}$″	± $\frac{1}{32}$″	95″ x 120″	100″ x 150″	2.86

QUALITIES

Regular plate is produced in Silvering and Mirror Glazing qualities, which are used in making fine mirrors and for high quality glazing in residences, and in Glazing quality, which is used for general glazing purposes. Color clear and colored plate are furnished in quality equivalent to regular plate glass.

USES

Below are suggested a few examples for the use of plate glass.

1. Regular plate
   - ⅛", 13/64"—Small panes, leaded lights, railway coaches, mirrors, etc.
   - ¼"—Windows of public and office buildings, residences and apartment buildings, show windows, show cases, street cars, railway coaches, shelving, table and desk tops, large mirrors, etc.
   - ½"—Portlights, long shelves, glass furniture, background for decoration, etc.
   - ½" to 1¼"—Floor, deck and portlights on ships; ac-

quarium tanks, glass furniture, table and desk tops, etc.

2. Color clear plate glass, which is exceptionally clear and colorless, is ideal for picture windows, commercial, refrigerator cases, and mirrors.
3. Colored plate glass can also be used for picture windows. It is very effective for mirrors and for various decorative effects.

Heat Absorbing Plate Glass

DESCRIPTION

Heat absorbing polished plate glass is a product of special chemical composition, pale bluish green in color, and made to absorb a high percentage of the infra-red heat rays of the sun. Part of the absorbed heat is subsequently transferred to the interior, but a considerable portion is given off to the exterior, effecting a net reduction of the solar heat entering through the glass.

CHARACTERISTICS

Heat absorbing plate glass ⅛" thick excludes 29½% of the total solar radiation; ¼" thick 38½%, as compared with an exclusion of 9½% afforded by regular plate glass ¼" thick. These figures are based on the assumption of 50% of the re-radiation of the absorbed heat in the glass to the interior and 50% to the exterior. This reduction of solar heat transmission, will produce a cooler atmosphere inside, resulting in lower initial cost for the air conditioning equipment and reduced cost of operation. Heat absorbing plate glass reduces sun glare, and provides light which is restful to the eyes and nerves.

USES

Heat absorbing plate glass is particularly suited for glazing the windows of office and apartment buildings, hospitals, schools, factories, and other types of buildings where the exclusion of solar heat is a problem. Merchants whose wares are perishable will find heat absorbing plate glass beneficial for show windows. Because of its heat absorbing characteristics, this glass helps protect merchandise such as fruits, vegetables, candy, flowers, and other perishables, helps to keep it fresh much longer. It also is useful for windows of stores and ice cream parlors where refrigerating equipment may necessarily be in line with rays of the sun coming through show windows.

THICKNESSES, SIZES, AND WEIGHTS ARE AS FOLLOWS:

Thickness	Thickness Tolerance	Standard Maximum Width and Length	Maximum Size Special Order	Approx. Weight Lbs. per Sq. Ft.
⅛"	± 1/32"	40" x 80"	55" x 90"	1.64
¼"	± 1/32"	70" x 100"	100" x 130"	3.27

Mirrors

The spectacularly growing use of plate glass mirrors makes them increasingly important items to the lumber and building material dealer.

QUALITIES

Mirrors are graded according to the quality of plate glass used. "A"—(Silvering Quality) used only for the finest mirrors. No. 1 (Mirror Glazing Quality) used for all types of selected mirrors. No. 2 (Glazing Quality) used for all other plate glass mirrors which are termed "commercial" mirrors.

These standards correspond to those established by the Department of Comerce through the National Bureau of Standards as Commercial Standard CS27-36.

SIZE LIMITATIONS

When facing wall areas with large mirror sections, it is generally advisable to keep the size of the sections within 7 x 12 feet, although larger dimensions can be furnished for special conditions. Larger wall areas may also be covered with a series of adjacent mirrors.

USES

Mirrors are playing an increasingly important part in modern decoration and design. Architects and designers have found that mirrors bring increased light, beauty, sparkle and spaciousness into residences, hotels, apartment houses and public buildings.

A recent use of mirrors is to double the apparent size of a room or space by facing one wall or two adjoining walls with large mirror sections, attached with rosettes of mastic.

Circular mirrors for dining rooms, fireplace-to-ceiling mirrors for living rooms, full length, plate glass mirrors for bedrooms and dressing rooms, built-in-mirrors for smart powder rooms—all aid in introducing charm and dignity into modern homes.

Commercial uses for mirrors are wide and varied—up-to-the minute department stores and showrooms use large areas of mirrored surfaces for background effects, triple mirrors in clothing sections, overhead mirrors for decorative purposes. Mirrored walls and ceilings are used extensively in bars, restaurants, clubs, theaters, etc. and add decorative beauty and spaciousness where room is limited.

Transparent Mirrors

Durability and permanence are outstanding qualities of Transparent Mirrors—a new product using evaporated chromium alloy for "one-way-mirror" installations.

With a light transmission of approximately 15% and a light reflection from the mirrored side of about 45%, the specially treated plate glass when properly installed serves as a mirror from the front, but is transparent when viewed from the back. For example:

When a Transparent Mirror is installed between two rooms, one of which is brightly lighted and the other dimly lighted, an observer in the dark room can see into the lighted one, but the glass has the appearance of an opaque mirror in the illuminated room. The perfection of the performance is governed by the difference in brightness between the two rooms. The mirrored side should be installed toward the room into which a view is desired.

SIZES

Transparent Mirrors can be obtained in ⅛" plate glass and in sizes up to 30" x 40".

USES

The following suggested uses for Transparent Mirrors are a few of many possible applications:

In residence entrance doors, hospital observation windows (particularly psychiatric), show windows, nursery doors in residences, instrument manufacturing (used in cameras and other scientific instruments), night clubs and taverns, security windows in government offices, banks, post offices, FBI offices, police departments, private offices, factories and institutions, and colleges and universities (psychology departments). The mirrors also are suitable for novel advertising signs and show windows.

Tempered Plate Glass

Tempered plate glass is made by a process of reheating and sudden cooling, as a result of which the outer surfaces are in a state of high compression while the central portion remains in tension, producing a condition highly resistant to breakage. The process can be applied to both clear and colored plate glass.

PROPERTIES

Tempered plate glass is approximately three to five times stronger than regular plate glass in sustaining loads and resisting fracture due to strain, and approximately five to seven times more resistant to ordinary impact and three times more resistant to thermal shock. It is more resistant to bending stresses than ordinary plate glass. A piece of ¼" tempered glass 42" long and 12" wide can be twisted through an angle of 20° without breaking. Tempered glass retains the same appearance, clearness, hardness and coefficient of expansion as regular plate glass. When its limit of resistance is reached, it does not break like ordinary glass, into jagged pieces, but disintegrates into small crystals.

SPECIAL CONDITIONS

Tempered plate glass can be ordered in circles, squares, rectangles and special shapes cut to pattern. It can also be supplied in a variety of edge finishes. However, since it cannot be cut after it is tempered, the exact sizes required must be specified, and intricate designs should be submitted for approval.

TYPES, THICKNESSES AVAILABLE

Types, thicknesses, and sizes of tempered plate glass available are listed in the following table:

Kind	Thickness	Min. Width	Max. Size	Thickness Tolerance	Dimensional Tolerance
Regular Plate	1/4", 3/16", 1/2"	2"	56" x 108"	± 1/32"	± 1/32"
	5/16", 3/8", 1/4"	2"	40" x 100"	± 1/32"	± 1/32"
	5/8", 1", 1 1/4"	2"	40" x 100"	± 1/16"	± 1/16"
Color Clear Plate	1/4"	2"	56" x 108"	± 1/32"	± 1/32"
Colored Plate	1/11"	2"	48" x 72"	± 1/32"	± 1/32"
Golden Plate	1/11"	2"	48" x 72"	± 1/32"	± 1/32"
Heat Absorbing Plate	1/4"	2"	48" x 72"	± 1/32"	± 1/32"

Circles and squares are available.

COMPARATIVE MODULUS OF RUPTURE

Plate Glass	*Tuf-flex*
Average—6,000 lb./sq. in.	Average—30,000 lb./sq. in.

COMPARISON OF IMPACT

Kind of Glass	2 Lb. Steel Ball Critical Height Dropped	11 Lb. Shot Bag Critical Height Dropped
1/4" Plate	Average 8 inches	Average 37 inches
1/4" *Tuf-flex*	Average 60 inches	Average 160 inches

RESISTANCE TO THERMAL SHOCK

Kind of Glass	Average difference in temperature °F required to cause failure
1/4" Plate	147° F
1/4" *Tuf-flex*	466° F

USES

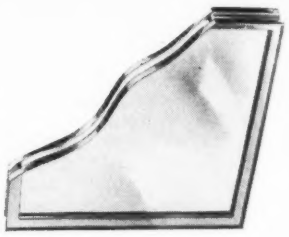
The greater strength of tempered plate glass has resulted in its wide use for visual entrance doors, ship's glazing, steam and oil pressure gauge covers, shelving, furniture, counter tops, show cases, and for enclosures in museums, zoological gardens and aquariums. Its ability to withstand impact makes it especially adaptable for balustrades, stair railings, push and kick plates on doors, windows in gymnasiums and sport arenas, and in jails, hospitals and mental institutions.

Tempered plate glass doors have come into wide use for entrances into stores, commercial buildings, and public structures of all kinds. Since they are, practically speaking, all glass they allow maximum visibility. Consequently they are especially advantageous in retail establishments.

Tempered plate doors cannot be fitted or altered on the job. This means that they must be made complete at the factory in a wide range of sizes and to quite exact dimensions. Necessary hardware, in a variety of types and finishes must also be attached at the factory. Because of these factors it is impracticable to include full information on tempered plate doors in a manual of this size. Your glass distributor has complete data on measuring, ordering and installation. Call on him whenever you see an opportunity to sell tempered plate glass doors.

Insulating Double Glazed Units

One of the most significant glass developments in recent years is double glazed insulating units. Because it is newer than other glass products but more because it will unquestionably become increasingly important to the building industry, Insulating Double Glazed Units will be given a more detailed treatment than other glass products in this manual.



THIS is a cutaway view of double glazed unit. The metal-to-glass bond seals the edges of the two panes of glass.

DESCRIPTION

Insulating double-glazed units constitute a factory-built transparent glass unit composed of two or more lights of glass separated by 1/4" or 1/2" of dehydrated captive air, hermetically sealed around the edges at the factory.

MANUFACTURE

Thermopane can be furnished in squares, rectangles or straight edge shapes, providing angles on such shapes are not too acute. It is generally fabricated to ordered sizes, but manufacturers have developed certain standard sizes (see chart).

FOUR FEATURES

1. GREATER YEAR 'ROUND INSULATION against cold and heat. Makes living conditions more healthful and comfortable and saves fuel.
2. BONDERMETIC SEAL. This metal-to-glass seal bonds the panes of glass into one unit to guard against dirt and moisture entering the dry air space.
3. CLEARER VISION. The sealed-in dry air greatly reduces the possibility of condensation on the glass.
4. ONLY TWO SURFACES TO CLEAN. The glass surfaces inside a unit are specially cleaned at the factory.

USES

Double-glass is practical for glazing of wood or metal windows and doors in homes, apartments, schools, hospitals and other structures requiring heating or air conditioning.

HEAT LOSS TRANSMISSION

Double glazed units provide a high resistance to heat flow, varying with the number of panes and the thickness of the air space used. In summer the low heat transmission coefficient reduces the load on air conditioning systems. In winter it saves heat.

The greater efficiency of double compared with single glazing makes it possible to use larger windows to keep the cost of fuel constant. It is said that a house could have 115 square feet of double glazed instead of 40 square feet of single glazing without any increased loss of heat. Double glazing permits the influx of a larger amount of the solar heat through exterior glazing of buildings without a prohibitive compensating loss by conduction. By combining various types of heat-absorbing and colored glass in the fabrication of double glazing, the amount and quality of light transmission may be controlled, if this is desirable.

Because double glazed is an insulating unit, it reduces the coefficient of heat transfer. This increases the temperature of the surface facing the room side, thereby reducing "windowpane chills" and making living conditions more healthful and comfortable. Many builders have found this a desirable sales factor.

HEAT TRANSMISSION TABLE

The over-all heat transmission coefficient U varies with the ranges of temperature at which the coefficient is determined. For most practical heat loss calculations, coefficient U can be the value determined at 10 degrees outside temperature, 70 degrees inside temperature, 15

Number of Panes	Glass Thickness	U Value Air Space None	1/4"	1/2"
Single Glass	1/8"	1.16		
	1/4"	1.15		
Double *Thermopane* (one air space)	1/8" or 1/4"		.65	.58
Triple *Thermopane* (two air spaces)	1/4"		.47	.40

IT ALWAYS PAYS TO RECOMMEND

...a little extra glass

A mantel mirror reflects all the color and movement of the living room, gives an impression of spaciousness.

GLASS is *glamorous* . . . and your customers recognize that fact. They are anxious to include smart, up-to-date glass installations in their homes when they build or remodel. You can help them . . . and yourself . . . by recommending where and how glass can be attractively used in their homes.

There are many places in modern homes where glass is particularly useful or exceptionally charming. PC Glass Blocks admit plenty of daylight to dark areas, at the same time guard privacy, exclude dust and deaden noise. Carrara Structural Glass walls add color to kitchen or bathroom . . . they are easy to keep clean and attractive. And full-length door mirrors of Plate Glass should be used at least in every bedroom. Glass applications like these have already proved their popularity with hundreds of customers . . . they know that a *little* extra glass means a *lot* of extra charm.

We will gladly send you our booklet which will suggest many ideas for the use of glass in the home . . . ideas which you can pass along to your customers. Use the coupon below. There is no obligation.

Pittsburgh Plate Glass Company
2074-7 Grant Building, Pittsburgh 19, Pa.

Please send me, without obligation, your new book on the use of glass in the home.

Name_____

Address_____

City_____ State_____

PG "PITTSBURGH" *stands for Quality Glass and Paint*

PITTSBURGH PLATE GLASS COMPANY

mph outside air velocity, 0.25 mph average inside air velocity. The table gives such values from actual tests with glass sizes 30" x 30".

EXTRA STRENGTH CONDITIONS

Where extra strength in glazing is required to withstand high pressures which would rupture standard plate glasses, insulated double glazed units can be manufactured from ¼" tempered plate glass.

STANDARD DOUBLE SIZES

The new standard sizes for double glazing recently have been developed in cooperation with leading manufacturers of wood and steel sash in answer to requests from many architects, designers and builders. (See chart for full details.) These standard size units comply with the American Standards Association 4" modular construction.

There are numerous advantages to specifying standard sizes. Manufacturers of wood sash have developed standard Picture Window frames and sash units using them. Glass distributors and wholesale sash and door jobbers will carry warehouse stocks of these units, thus making them more readily available. Builders can incorporate standard sizes in their specifications. Replacements and duplications of orders will be handled more quickly.

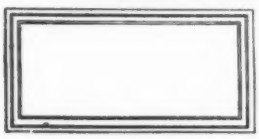
PICTURE WINDOWS—STANDARD SIZES

The new standard units are being manufactured in a wide range of sizes, readily adaptable by builders for new construction and remodeling.

The sizes for Picture Windows in single lights, double hung wood window units and residential steel sash casements are shown on the chart.

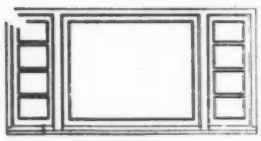
PICTURE WINDOWS — STANDARD SIZES

STANDARD WOOD PICTURE WINDOW UNITS



PICTURE WINDOW GLASS SIZE	
42" x 66"	66" x 96"
42" x 72"	72" x 84"
66" x 84"	72" x 96"

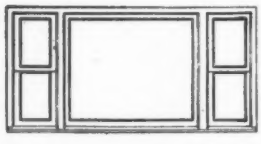
STANDARD WOOD PICTURE WINDOW UNITS WITH FLANKING CASEMENTS



Note: Standard double *Thermopane* units for above are composed of two ¼" panes of polished plate glass with ½" air space

WINDOW OPENING (Including the Casement Units)		PICTURE WINDOW GLASS SIZE	
Width	Height	Width	Height
6'-5¼"	4'-2⅜"	35½"	48⅛"
8'-1"	4'-2⅜"	55¼"	48⅛"
9'-8¾"	4'-2⅜"	75"	48⅛"
6'-5¼"	5'-2⅛"	35½"	60⅜"
8'-1"	5'-2⅛"	55¼"	60⅜"
9'-8¾"	5'-2⅛"	75"	60⅜"

STANDARD WOOD PICTURE WINDOW UNITS WITH FLANKING DOUBLE HUNG WINDOWS



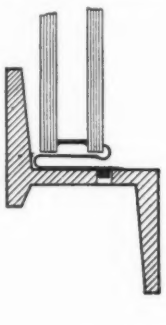
Note: Standard double *Thermopane* units for above are composed of two ¼" panes of polished plate glass with ½" air space

PICTURE WINDOW SASH OPENING (Without double hung unit)		PICTURE WINDOW GLASS SIZE	
Width	Height	Width	Height
4'-4"	4'-6"	48½"	50"
5'-0"	4'-6"	56½"	50"
5'-8"	4'-6"	64½"	50"
6'-4"	4'-6"	72½"	50"
7'-0"	4'-6"	80½"	50"
8'-4"	4'-6"	96½"	50"
5'-8"	5'-2"	64½"	58"
6'-4"	5'-2"	72½"	58"
7'-0"	5'-2"	80½"	58"
8'-4"	5'-2"	96½"	58"
10'-0"	5'-2"	116½"	58"

Window openings will vary according to individual sash manufacturers specifications. Therefore, manufacturers should be contacted for full information regarding their units.

SPECIAL GLAZING CLIP

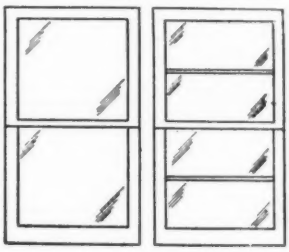
For satisfactory glazing of *Thermopane* in steel sash, use special clips developed by Libbey-Owens-Ford. The illustration shows application of the glazing clip.



DOUBLE HUNG WINDOWS

Wood sash manufacturers offer 1¾" check rail double hung windows, ASA modular coordinated, in both two-light and four-light horizontal sash as illustrated at right.

The complete range of standard sizes for double *Thermopane* double hung units is shown below.



DOUBLE HUNG WOOD WINDOWS

WINDOW OPENING		GLASS SIZES	
Width	Height	2-LIGHT	4-LIGHT
2'-4"	4'-6"	24" x 24"	24" x 11⅜"
2'-8"	4'-6"	28" x 24"	28" x 11⅜"
3'-0"	4'-6"	32" x 24"	32" x 11⅜"
3'-4"	4'-6"	36" x 24"	36" x 11⅜"
3'-8"	4'-6"	40" x 24"	40" x 11⅜"
4'-0"	4'-6"	44" x 24"	44" x 11⅜"
2'-4"	5'-2"	24" x 28"	24" x 13⅜"
2'-8"	5'-2"	28" x 28"	28" x 13⅜"
3'-0"	5'-2"	32" x 28"	32" x 13⅜"
3'-4"	5'-2"	36" x 28"	36" x 13⅜"
3'-8"	5'-2"	40" x 28"	40" x 13⅜"
4'-0"	5'-2"	44" x 28"	44" x 13⅜"

Double *Thermopane*, manufactured with two lights of Double Strength "A" quality L·O·F Window Glass with ¼" air space between, is standard for double hung windows.

RESIDENTIAL STEEL SASH

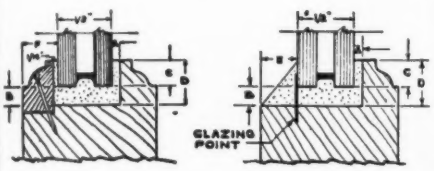
Double *Thermopane*, manufactured with two lights of Double Strength "A" quality L·O·F Window Glass with ¼" air space between, is standard for residential steel casement windows.

STANDARD *THERMOPANE* SIZES

16" x 12", 16" x 11 5/16", 14" x 12", 14" x 11 5/16", 14" x 10", 14" x 9 5/16", 14¾" x 12", 17¼" x 12", 12" x 12".

THERMOPANE GLAZING DETAILS

It is extremely important to remember that *Thermopane* is a factory-fabricated unit and once made to specifications, its dimensions cannot be changed at point of use. Proper glazing clearances must be allowed on all *Thermopane* units, as well as sufficient rabbet depth, so that the metal seal does not show. The adjacent chart and drawings below give this information.



Symbol	Symbol Explanation	Glass Thickness					
		D. S. A. 1/8" Plate 1/8" Figured	3/16" Sheet Glass		13/64" or 1/4" Plate 7/32" or 1/4" Figured		
A	Bed Putty—Width	1/16"—1/8"	1/16"—1/8"	1/16"—1/8"	1/8"	1/8"	1/8"
B	Glazing Clearance (all edges)	1/8"	1/8"	3/16"	1/8"	3/16"	1/4"
C	Metal Edge—Depth	3/8"	3/8"	3/8"	3/8"	1/2"	1/2"
D	Total Rabbet Depth (Clearance & metal, B+C)	1/2"	1/2"	9/16"	1/2"	11/16"	3/4"
E	Putty—Width	1/2"+*	5/8"+*	3/4"+*	3/4"+*	Wood Stops Only	
F	Wood Stop—Width	1/2"+	5/8"+	3/4"+	3/4"+	7/8"+	1"+
	Glass Sizes	8" x 8" to 32" x 48" and 12" to 18" wide by 60" long or under 80 united inches	8" x 8" to 32" x 48" or under 80 united inches	34" x 48" to 36" x 72" or from 80 to 120 united inches	8" x 8" to 32" x 48" or under 80 united inches	34" x 48" to 38" x 82" or sizes not over 40" wide from 80 to 120 united inches	40" x 40" to 50" x 120" and 60" x 100" or any sizes over 120 united inches

*Wood stops preferable.

AIR SPACE—1/4" or 1/2" air spaces can be furnished on all units up to the maximum size shown in the chart on page 5, but for building exteriors sizes 50" wide and over will be furnished with 1/2" air space only.

DOUBLE *THERMOPANE* TYPES OF GLASS AND SIZES

Type of Glass	Min. Size 1/4" or 1/2" Air Space	Max. Size with 1/4" Air Space	Max. Size with 1/2" Air Space	Thickness Range		Dimensional Tolerance	Approx. Aver. Net Weight per Sq. Ft.
				1/4" Air Space	1/2" Air Space		
D.S.A. 1/8" Blue Ridge Figured 1/8" Plate 1/8" Heat Absorbing Plate	8" x 8"	32" Max. Width Length Not to Exceed 4 1/2 times width. Total Area 1400 Sq. In.	24" Max. Width Length Not to Exceed 4 1/2 times width. Total Area 1400 Sq. In.	7/16" to 9/16"	11/16" to 13/16"	+1/16" −1/16"	3 1/2 lbs.
3/16" Sheet	8" x 8"	42" Max. Width 72" Max. Length	42" Max. Width 72" Max. Length	9/16" to 11/16"	13/16" to 15/16"	+1/8" −1/16"	5 lbs.
1/4" Plate	8" x 8"	48" Max. Width. 132" Max. Length. Total Area 4800 Sq. In.	98" Max. Width. 132" Max. Length. Total Area 9600 Sq. In.	11/16" to 13/16"	15/16" to 1 1/16"	8" to 36" wide +1/8" −1/16" 36" to 60" wide +3/16" −1/16"	7 lbs.
1/4" Color Clear Plate		48" Max. Width. 132" Max. Length. Total Area 4800 Sq. In.	70" Max. Width. 132" Max. Length. Total Area 9240 Sq. In.				
1/4" Heat Absorbing Plate	8" x 8"	48" Max. Width. 100" Max. Length. Total Area 4800 Sq. In.	70" Max. Width. 100" Max. Length. Total Area 7000 Sq. In.	11/16" to 13/16"	13/1 " to 1 1/16"		7 lbs.
7/32" Colored Plate	8" x 8"	48" Max. Width. 120" Max. Length. Total Area 4800 Sq. In.	60" Max. Width. 120" Max. Length. Total Area 6000 Sq. In.	5/8" to 3/4"	7/8" to 1"		6 1/4 lbs.
7/32" Blue Ridge Figured	8" x 8"	48" Max. Width. 100" Max. Length. Total Area 4800 Sq. In.	48" Max. Width. 100" Max. Length. Total Area 4800 Sq. In.	5/8" to 3/4"	7/8" to 1"		6 lbs.
Tuf-flex (1/4") in Polished Plate, Color Clear, Heat Absorbing and Colored Plate	8" x 8"	40" x 48"	40" x 48"	11/16" to 13/16"	15/16" to 1 1/16"	+1/8" −1/16"	7 lbs.

For building exteriors, sizes 48" wide or over will be manufactured with 1/2" air space only.

Structural Glass

DESCRIPTION

Structural glass is opaque colored glass, 11/32" or more in thickness, which can be applied to walls and other vertical or horizontal areas. It offers a practical means of attaining unusual beauty that is preserved by characteristics inherent in glass. Panels provide a more pleasant appearance than areas made up of many smaller pieces. Joints are so narrow as to hardly be noticeable.

CHARACTERISTICS

Structural glass is opaque, homogeneous, non-absorbent and impervious to moisture. Possesses high tensile and

crushing strength, and is highly resistant to absorption. It will not warp, swell or craze. Liquids in common use cannot penetrate it, and it will not absorb liquids or gases that give off unpleasant odors. It is not easily stained and will not burn. It is difficult to write or mark upon and is easily cleaned by the whisk of a damp cloth—or in extreme cases by the application of soap and water. Because of these characteristics structural glass has won the favor of builders and home owners.

The color of structural glass is not a coating—it is all through the glass, providing a deep lustrous tone that is unharmed by weathering, steam, water or other elements that cause deterioration of less stable surfaces. Structural glass bathroom walls are the pride of home owners after many years of subjection to splashing and washing. The structural glass colors were selected after much study to attain shades that blend well with each other. These colors harmonize beautifully with standard colors used by kitchen and bathroom fixture manufacturers. And the colors are in shades that blend readily with drapes, curtains and other home decoration elements.

SIZE LIMITATIONS RECOMMENDED

For the maximum of beauty, strength and efficiency, structural glass panels should be restricted to the following range of sizes according to the type of installation: bathroom and kitchen walls, 8″ x 12″ to 24″ x 24″; interior walls for commercial buildings up to 30″ x 36″; storefront facing, 6 square feet; toilet partitions, up to 60″ x 60″.

COLORS AND THICKNESSES

Vitrolite Colors	Fire Polished	Ground and Polished
White	1/32″, 7/16″ and 3/4	
Peach	1/32″	
Jade	1/32″	
Light Gray	1/32″	
Red		1/32″
Black		1/32″, 7/16″ and 3/4″

Thickness Tolerance: ±1/32″
Weights: Net Weight, lbs. per sq. ft.: 1/32″, 4.4 lbs.; 7/16″, 5.6 lbs.; 3/4″, 10.2 lbs.
***Vitrolite* colors are available subject to stock on hand or additional manufacture.**

INSTALLATION

Structural glass can be applied over any relatively flat hard wall surface that is not subject to warping. (It should not be installed on wood.)

It is installed in interiors with mastic and 1/64″ joints buttered or pointed with joint cement. Pointing is usually sufficient but for shower partitions and wainscoting, the joints should be buttered and pointed. For exterior installation, it is attached with asphaltic mastic and supported at the lower edge adjoining the sidewalk and at horizontal joints by concealed shelf angles or by metal angles having facing shapes that overlap. All joints on exteriors should be 1/16″, buttered and pointed with joint cement. All horizontal joints should be cushioned with adhesive cork tape.

Direct contact with metal, concrete or other hard substances should be avoided and some kind of cushioning material should always be provided. Abutting edges should be ground and chamfered, exposed edges polished and chamfered or finished with quarter round. Avoid sharp mitered corners. Corners subjected to rough usage should have metal guards. The extremities of a storefront installation should be protected with a suitable metal member. Top courses should have projecting member of metal or other material provided with a drip. Distance from background wall or surface to face, 5/8″ to 3/4″ for 11/32″; 3/4″ to 7/8″ for 7/16″. Your glass distributor has details and specifications for structural glass construction available upon request, also booklets dealing with storefronts, theaters, restaurants, table tops, counters and soda fountains, bathrooms, kitchens, etc.

USES

The applications of structural glass are as general as the desire for long-lasting beauty. Facing of storefronts and exteriors of buildings. Lobbies of hotels and office buildings. Wainscoting for partitions, corridors, washrooms, toilets and shower baths in public buildings. In homes—for wainscoting of bathrooms, kitchens, breakfast rooms as well as work table tops and splash backs.

Laminated Safety Glass

Many lumber and building material dealers, especially in those localities not being served by Auto Glass dealers, have built up profitable business in laminated safety glass. They have equipped themselves to install safety glass at retail or for nearby auto repair concerns.

Safety glass is a glass unit composed of two lights of glass laminated with an interlayer of transparent plastic by a process involving extreme heat and pressure.

A series of improvements have marked the development of safety glass, chiefly involving the plastic interlayer. The present type, the best yet developed, is called Hi-Test Safety Glass because of the Hi-Test Polyvinyl acetal plastic used as the interlayer sheet. This plastic has unusual strength, elasticity, and adhesion.

When safety glass is fractured, the particles of glass tend to adhere to the plastic, affording more protection against flying glass fragments.

TYPES

In the table below various types of laminated safety glass are described as follows:

Thin safety glass is made up from two lights of picture glass.

S.S. from two lights of single strength window glass.

Combination from one light of single strength and one light of double strength.

D.S. from two lights of double strength.

Safety plate from two lights of thin plate glass.

Kinds of Glass	SAFETY GLASS: Number of Lights	SAFETY GLASS: Thickness of Safety Glass	Thickness Tolerance	Maximum Size	Net Weight Lbs. Per Sq. Ft.
Thin Safety Glass	2	5/32″	−1/32″	Up to 7 sq. ft.	1.75
S.S. Safety Glass	2	7/32″	±1/32″	Sizes	2.63
Combination Safety Glass (S.S. & D.S.)	2	13/64″	±1/32″	up to 15 sq. ft.	3.00
D.S. Safety Glass	2	1/4″	±1/32″	of area	3.05
Safety Plate	2	1/4″	±1/32″	60″ x 74″	3.05

Heavy Safety Plate: 2 ply, thicknesses—1/32″, 3/8″, 13/32″, 1/2″, 5/8″, 3/4″, 7/8″, 1″; maximum size 60″ x 74″; weights ranging from 4.47 to 13 lbs. per sq. ft.; thickness tolerance ±1/32″ for thicknesses 1/32″ to 5/8″; ±1/16″ for thicknesses 3/4″ to 1″
Bullet Resisting Glass: thicknesses—3/4″, three ply; 7/8″ and 1″, four ply; 13/16″, 15/16″, 2 3/32″, five ply; 2 1/2″, 7 ply; 3″, 9 ply. Maximum sizes, 43″ x 63″ or 33″ x 73″. Weights range from 9.75 to 39 lbs. per sq. ft. on basis of 156 lbs. per cubic ft. Thickness tolerance ±1/16″ for thicknesses 3/4″ to 2 3/32″; ±3/32″ for thicknesses 2 1/2″ to 3″.
***Tuf-flex* plate glass in thicknesses of 1/4″ to 1 1/4″ can be combined into Safety Glass to maximum sizes of 18″ x 24″**
Requirements for Safety Glass or Bullet Resisting Glass other than listed should be submitted for consideration.

USES

Windows and windshields in automobiles, buses, trucks, railway coaches, airplanes, etc. View panels and barriers for animal cages in zoos and aquariums. Windows, doors, screens, glass furniture or any use where breakage or collapse of glass might cause damage or injury.

Bullet-resisting glass, composed of multiple laminated layers of glass and plastic is used for enclosures in banks, cashiers' cages, jewelry stores and as protective guards or screens.

Safety glass cannot be set with the types of putty or mastic ordinarily used in glazing because they are likely to cause deterioration of the plastic.

CUTTING AND INSTALLATION

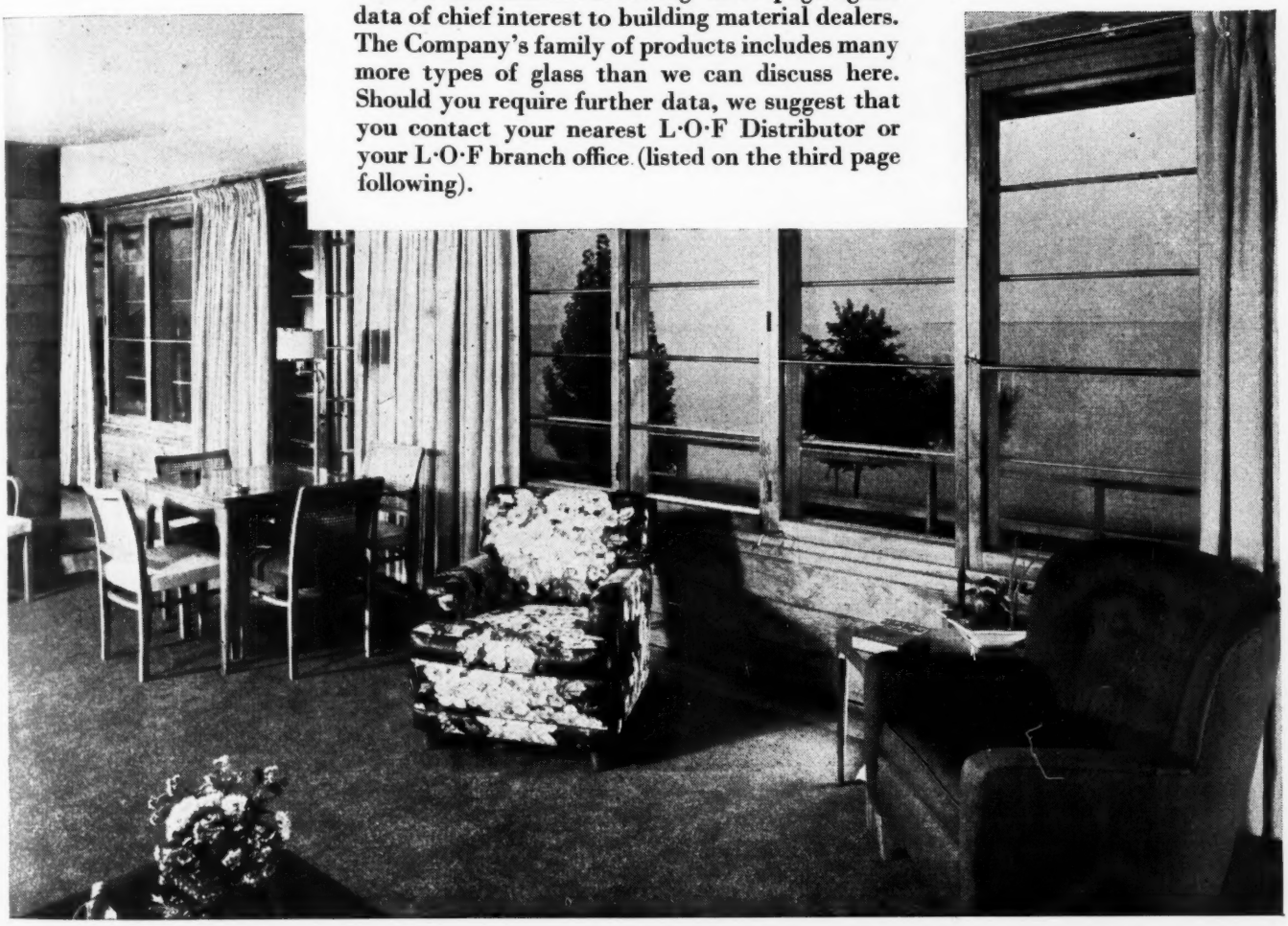
For detailed instructions on cutting and installing safety glass ask your glass distributor.

(Continued on Page 159)

L·O·F
REG. U.S. PAT. OFF

A great name in Glass

Libbey·Owens·Ford Glass Company, one of the world's largest manufacturers of flat glass, outlines in this and the following three pages glass data of chief interest to building material dealers. The Company's family of products includes many more types of glass than we can discuss here. Should you require further data, we suggest that you contact your nearest L·O·F Distributor or your L·O·F branch office (listed on the third page following).



L·O·F *Window* GLASS

Libbey·Owens·Ford Window Glass is exceptionally transparent and has a natural fire-finished surface in which distortion is held to a minimum. It is made by L·O·F's Flat Drawn Process which produces a clear, bright glass of unusual flatness. Due to the longer annealing process employed, L·O·F quality glass is less brittle, and can be cut much easier with less breakage. For windows, doors, storm sash and in cabinet fronts and shelving, it has proved its merit. The well-known L·O·F Window Glass label is your guarantee of the best in window glass.

Window Glass is supplied in two thicknesses:

Single Strength—identified by a *red* label—from 10 to 11½ lights per inch.

Double Strength—identified by a *blue* label—from 7½ to 8 lights per inch.

Window Glass is supplied in four standard qualities:

"AA"—specially selected glass for high-grade work.
"A"—select glass of superior glazing quality.
"B"—suitable for general glazing purposes.

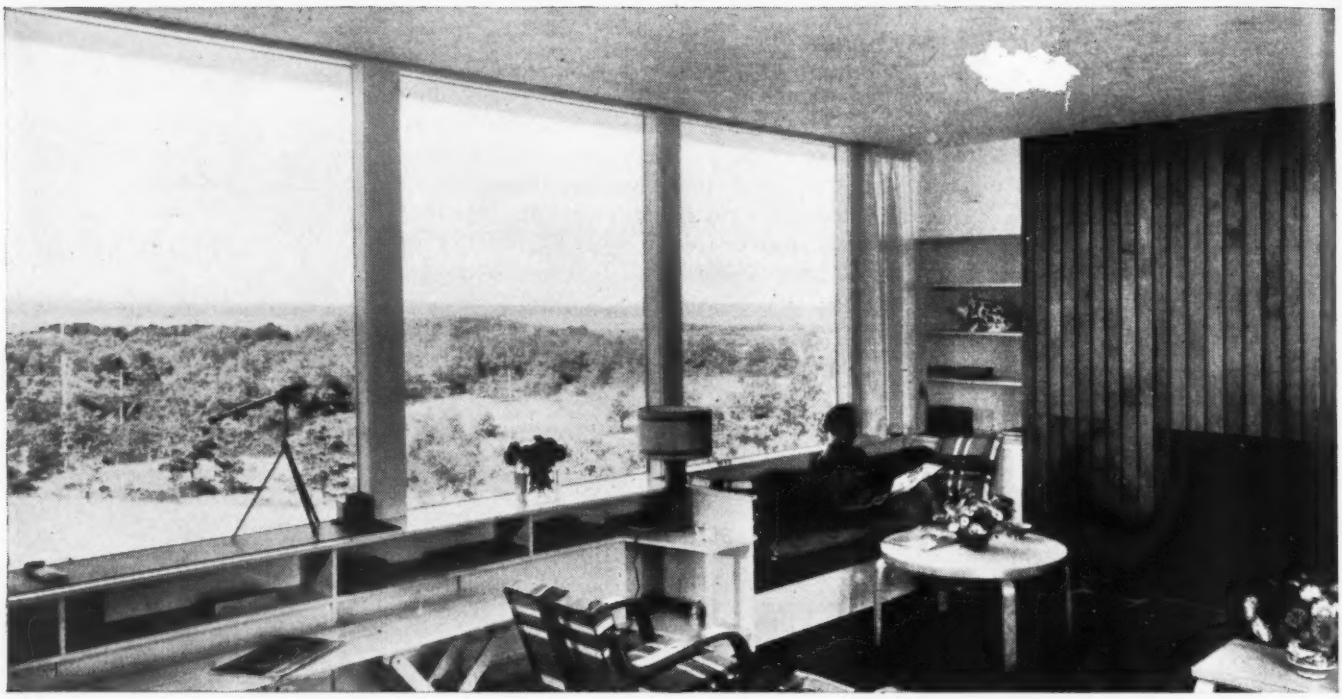
Heavy sheet glass is supplied in thicknesses of 3/16" and 7/32", and in qualities "AA", "A" and "B".

Classification, Quality	Thickness in Inches	Approx. Wt. Sq. Ft. in Ozs.	Maximum Size Furnished
Single Strength "AA", "A", "B"	.087–.100	19.50	90 united in.
Double Strength "AA", "A", "B"	.118–.133	26	120 united in.
Double Strength Greenhouse	.118–.133	26	16" x 18" 16" x 24" 18" x 20"
3/16" Heavy Sheet "AA", "A", "B"	.187–.205	40	50 sq. ft.
7/32" Heavy Sheet "AA", "A", "B"	.210–.230	45	60 sq. ft.

PACKING . . . Shipped in Cushion Corner Cap packages, Libbey·Owens·Ford Window Glass is given neat, clean and practically moistureproof protection.

Thermopane.. the time-proved

REG. U.S. PAT. OFF.



Thermopane enables home builders to satisfy the desire for larger windows without sacrificing comfort or heating economy.

Building material dealers can recommend *Thermopane* with confidence. After fourteen years of research and development, Libbey·Owens·Ford announced *Thermopane* in 1944. Prior to its announcement, *Thermopane* already had been proved by years of service in hundreds of actual installations. *Thermopane* has proved itself in homes, schools, hospitals and public buildings in the United States, Mexico, Canada, Alaska and even Iceland.

THERMOPANE FEATURES

Thermopane is made of two or more panes of glass, separated by dehydrated air, and sealed around the edges at the factory with a patented metal-to-glass bond. *Thermopane* keeps homes warmer in winter, cooler in summer and reduces heating and air conditioning costs.

Compared with single glass glazing, the four important features of *Thermopane* are:

1. Greater year-round insulation against cold and heat. Makes living conditions more healthful and comfortable. Saves fuel.
2. L·O·F's Bondermetic Seal. This metal-to-glass seal bonds the panes of glass into one unit to guard against dirt and moisture entering the dry air space.
3. *Clearer Vision.* The sealed-in dry air greatly reduces the possibility of condensation on the glass.
4. *Only Two Surfaces to Clean.* The glass surfaces inside a unit are specially cleaned at the factory.

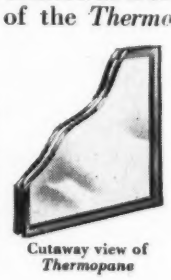
Thermopane is a factory fabricated unit. Double *Thermopane* is made in 55 standard sizes for simplification of design and replacement. *Thermopane* can be furnished in squares, rectangles or straight-edge shapes, provided angles on all shapes are not too acute.

GLAZING DETAILS *Thermopane* must be glazed in accordance with standard factory recommendations. These glazing instructions are part of the *Thermopane* warranty and should be followed in all installations.

GLASS CLEARANCES Since *Thermopane* is a factory-fabricated unit, further processing is not possible and its dimensions cannot be changed at point of use. Proper glass clearances are shown at top of next column.

SETTING BLOCKS *Thermopane* units must be supported on soft surface setting blocks, such as rotproof wood or soft lead. These should be the same width as the thickness of the *Thermopane* unit, with depth equal to the glazing clearance, and length approximately 2″ to 4″, depending on the size of the unit. They should be located in from each end a distance of ¼ the length of the *Thermopane* unit.

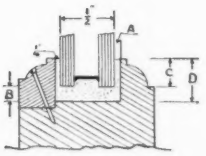
RABBET DEPTHS So that the metal seal does not show, sufficient rabbet depth must be allowed. To obtain over-all clearance, the rabbet depth must be added to the glass clearance. See the chart and illustration at top left of the following page.



Cutaway view of *Thermopane*

windowpane that insulates!

Symbol	Symbol Explanation	Unit Thickness ½″	Unit Thickness 1″
A	Back Bed Putty	1/16″ to 1/8″	1/8″
B	Glass Clearance Bed Putty	1/8″	1/4″
C	Metal Edge Depth	3/8″	1/2″
D	Total Rabbet Depth (B+C)	1/2″	3/4″



55 STANDARD DOUBLE THERMOPANE SIZES

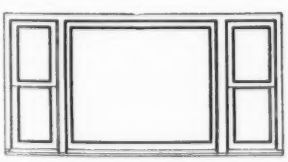
PICTURE WINDOWS Standard Double *Thermopane* units, composed of two ¼″ panes of Polished Plate Glass with ½″ air space between them, have been developed to comply with the American Standards Association 4″ modular construction.

These standard *Thermopane* units can be adapted by the architect or builder for individual Picture Windows in both new construction and remodeling.

Sizes are as follows:

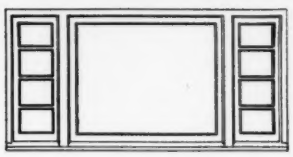
42″ x 66″ 66″ x 84″ 72″ x 84″
42″ x 72″ 66″ x 96″ 72″ x 96″

Manufacturers of wood sash, using *Thermopane* sizes and ASA 4″ modular standards, have developed standard Picture Window frames and sash units which can be combined with flanking casement or double hung stock units.



NOTE: Window openings will vary according to individual sash manufacturers' specifications. Please contact manufacturers for full information regarding their units.

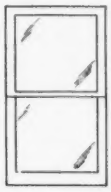
PICTURE WINDOW SASH OPENING (Without double hung unit) Width	Height	PICTURE WINDOW GLASS SIZE Width	Height
4′ 4″	x 4′ 6″	48½″	x 50″
5′ 0″	x 4′ 6″	56½″	x 50″
5′ 8″	x 4′ 6″	64½″	x 50″
6′ 4″	x 4′ 6″	72½″	x 50″
7′ 0″	x 4′ 6″	80½″	x 50″
8′ 4″	x 4′ 6″	96½″	x 50″
5′ 8″	x 5′ 2″	64½″	x 58″
6′ 4″	x 5′ 2″	72½″	x 58″
7′ 0″	x 5′ 2″	80½″	x 58″
8′ 4″	x 5′ 2″	96½″	x 58″
10′ 0″	x 5′ 2″	116½″	x 58″



WINDOW OPENING (Including the Casement Units) Width	Height	PICTURE WINDOWS Glass Size Width	Height
6′ 5¼″	x 4′ 2⅜″	35½″	x 48⅛″
8′ 1″	x 4′ 2⅜″	55¼″	x 48⅛″
9′ 8¾″	x 4′ 2⅜″	75″	x 48⅛″
6′ 5¼″	x 5′ 2 9/16″	35½″	x 60⅜″
8′ 1″	x 5′ 2 9/16″	55¼″	x 60⅜″
9′ 8¾″	x 5′ 2 9/16″	75″	x 60⅜″

DOUBLE HUNG WINDOWS Double *Thermopane* manufactured with two lights of Double Strength "A" quality Window Glass with ¼″ air space is standard for double hung wood windows.

Wood sash manufacturers offer 1¾″ check rail, double hung windows, ASA modular co-ordinated, in both two-light and four-light horizontal sash.

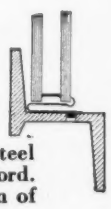


WINDOW OPENING Width	Height	GLASS SIZES 2-Light	4-Light
2′ 4″	x 4′ 6″	24″ x 24″	24″ x 11 5/8″
2′ 8″	x 4′ 6″	28″ x 24″	28″ x 11 5/8″
3′ 0″	x 4′ 6″	32″ x 24″	32″ x 11 5/8″
3′ 4″	x 4′ 6″	36″ x 24″	36″ x 11 5/8″
3′ 8″	x 4′ 6″	40″ x 24″	40″ x 11 5/8″
4′ 0″	x 4′ 6″	44″ x 24″	44″ x 11 5/8″
2′ 4″	x 5′ 2″	24″ x 28″	24″ x 13 5/8″
2′ 8″	x 5′ 2″	28″ x 28″	28″ x 13 5/8″
3′ 0″	x 5′ 2″	32″ x 28″	32″ x 13 5/8″
3′ 4″	x 5′ 2″	36″ x 28″	36″ x 13 5/8″
3′ 8″	x 5′ 2″	40″ x 28″	40″ x 13 5/8″
4′ 0″	x 5′ 2″	44″ x 28″	44″ x 13 5/8″

RESIDENTIAL STEEL SASH Double *Thermopane* manufactured with two lights of Double Strength "A" quality Window Glass with ¼″ air space is standard for residential steel casement windows.

Standard *Thermopane* sizes are as follows:

16″ x 12″ 14″ x 10″
16″ x 11 5/16″ 14″ x 9 5/16″
14″ x 12″ 14¾″ x 12″
14″ x 11 5/16″ 17¼″ x 12″
12″ x 12″



NOTE: For satisfactory glazing of *Thermopane* in steel sash, use special clips developed by Libbey·Owens·Ford. The illustration at the right shows the application of the glazing clip in steel sash.

• • •

When planning construction, be sure to obtain delivery schedules from your L·O·F distributor.

L·O·F *Polished Plate* GLASS

For fine Picture Windows and mirrors there is no substitute for Polished Plate Glass. This glass is ground and polished with the objective of making both sides flat and parallel, thus providing clear vision with a minimum of distortion. This flatness and freedom from distortion are two of the reasons why Polished Plate Glass is invariably selected for display windows in stores and shops.

L·O·F TUF-FLEX* TEMPERED PLATE GLASS.

Recommended where resistance to impact or thermal shock is desired. *Tuf-flex* is used for frameless glass doors, balustrades, stair railings, push and kick plates and for glazing gymnasium windows. It looks the same as regular plate glass. Exact sizes should be specified as *Tuf-flex* cannot be cut or drilled after tempering.

A GREAT NAME IN GLASS

For data on colored plate glass, *Color Clear** Plate Glass and various types of edge finishes, consult your L·O·F Distributor.

USES 1/8", 13/64"—Small panes, leaded lights, mirrors, etc.

1/4"—Windows of public and office buildings, residences and apartment buildings, show windows, mirrors, show cases, shelving, push plates, furniture tops, etc.

3/8"—Large show windows, stair rail panels, shelving, table and desk tops, large mirrors, etc.

1/2"—Long shelves, glass furniture, background for decoration, etc.

1/2" to 1 1/4"—Aquarium tanks, glass furniture, table and desk tops, etc.

CHART FOR SPECIFYING L·O·F PLATE GLASS

Thickness	Standard Maximum Width and Length	Maximum Size Special Order	Approx. Weight Lbs. per Sq. Ft.
1/8"	72" x 74"	74" x 144"	1.64
13/64"	72" x 74"	74" x 144"	2.65
1/4"	124" x 170"	124" x 250"	3.27
3/8"	100" x 150"	100" x 200"	4.90
1/2"	100" x 160"	100" x 200"	6.54
5/8"	80" x 140"	100" x 160"	8.17
3/4"	80" x 130"	100" x 150"	9.81
7/8"	40" x 100"	50" x 100"	11.44
1"	40" x 100"	50" x 100"	13.08
1 1/4"	40" x 100"	50" x 100"	16.25

L·O·F *Vitrolite*... COLORFUL GLASS FACING

*Vitrolite** is an opaque structural glass with a hard, non-absorbent, abrasion-resistant surface. It will not warp, swell or craze. Easily cleaned with a damp cloth. Colors—white, peach, jade, light gray, red and black. All colors are made in 11/32" thickness; white and black also in 7/16" and 3/4".

INSTALLATION *Vitrolite* is installed in interiors with Vitro-cement and 1/64" joints buttered or pointed. For exterior installation, *Vitrolite* is attached with asphaltic mastic and supported at the lower edge and at horizontal joints by metal angles. All joints on exteriors should be 1/16", buttered and pointed with joint cement. For full details, contact a Libbey·Owens·Ford Distributor listed in the classified section of the telephone directory, or your nearest L·O·F branch office (see below).

USES *Vitrolite* is especially suitable for wall facing in bathrooms, kitchens, breakfast rooms and powder rooms. Also for worktable tops and splash backs. Ideal for storefronts and many uses in public buildings and industrial plants.

LIST OF BRANCH OFFICES

Atlanta, Ga.	Jackson 2324	Detroit, Mich.	Mad. 0080	New York, N. Y.	Eld. 5-1025
Boston, Mass.	Hubbard 0100	Indianapolis, Ind.	Franklin 1363	Philadelphia, Pa.	Penny. 8666
Buffalo, N. Y.	Cleve. 0291	Kansas City, Mo.	Victor 5360	Richmond, Va.	3-3034
Chicago, Ill.	Central 2490	Los Angeles, Cal.	Michigan 0854	St. Louis, Mo.	Central 9863
Cincinnati, O.	Main 6174	Memphis, Tenn.	5-8225	San Francisco, Cal.	Sutter 4360
Cleveland, O.	Main 7180	Milwaukee, Wisc.	Hilltop 3110	Seattle, Wash.	Seneca 2513
Dallas, Tex.	Riverside 4026	Minneapolis, Minn.	Main 8429	Toledo, O.	Main 5291
Denver, Colo.	Tabor 8015			Washington, D. C.	Republic 4472

Libbey·Owens·Ford Glass Company, Toledo, Ohio *A Great Name in Glass*

*Reg. U.S. Pat. Off.

(Continued from Page 154)

PATTERNED AND WIRE GLASS

Various types of Patterned and Wire Glass have been handled by lumber and building material dealers for many years. At one time there were relatively few patterns, which were used rather indiscriminately, chiefly to obscure vision. Since then, however, great strides have been made in the design and application of patterned glasses. There is now a pattern or type of glass scientifically designed to meet every need of light transmission and diffusion. Also many new patterns have been introduced to produce a modern, decorative effect.

In addition to the plain fire finish, with which the glass emerges from the forming rolls, patterned glasses can be obtained with other types of surface processing:

Satinol—a treatment of one or both surfaces which imparts a soft satin finish to the glass. This increases its obscurity and spreads the transmitted light uniformly over a wide area. Satinol surfaces do not finger mark or collect dust and dirt as does sandblasted glass. They can be cleaned with either a dry or slightly damp cloth.

Satinol finish, one surface, reduces light transmission about 3%. Satinol finish, two surfaces, reduces light transmission about 6%.

Frosting—primarily a functional treatment of the glass surfaces achieved by acid etching to improve the distribution of light.

Sandblasting—another surface treatment. This also enhances obscurity of the glass and spreads light in a circular pattern.

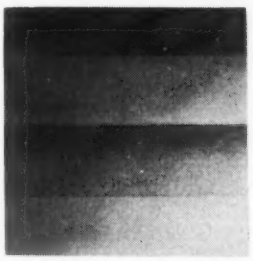
Sandblasting on one surface reduces light transmission about 16%, and 20% to 30% when applied to both surfaces, depending on type of glass.

HEAT TEMPERING

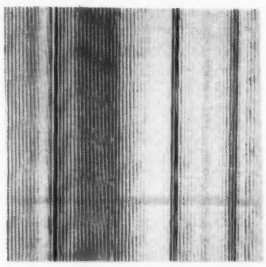
Most patterns can be heat-tempered to resist certain types of impact and thermal shock.

DESCRIPTION AND USES

Illustrated and described below are five patterns of distinctive design which are outstandingly suitable for decorative effects. They are especially effective for partitions, doors, transoms, side lights, screens, illuminated panels, and other decorative purposes.

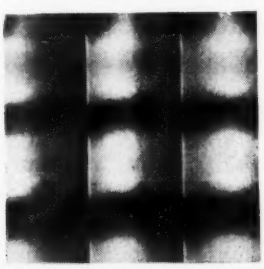


Alternating ascending and descending plane-surface louvers, one inch wide. Fairly transparent; obscurity and diffusion increased with Satinol finish. Approx. light transmission—90.4%.

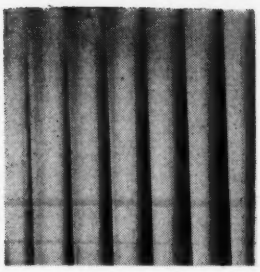


One smooth and one patterned side with curved, parallel concave waves 3/64" deep and ¾" crest-to-crest with approximately 15 parallel ribs. Approx. light transmission—78%.

Linear design with adjoining convex flutes one inch wide. Approx. light transmission—89%.

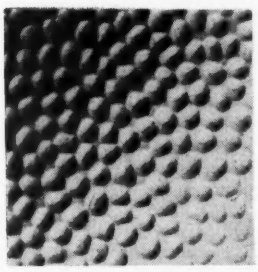


Doubled-patterned, with corrugated design on one side running at right angles to fluted design on the other, creating overall pattern of one-inch squares. Approx. light transmission—87%.

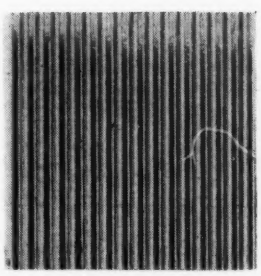


One smooth surface and a patterned side with curved, parallel concave flutes 3/64" deep and ½" crest-to-crest. Approx. light transmission—80%.

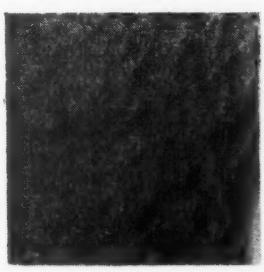
In addition to the five decorative glasses already described there are other patterns designed for various uses.



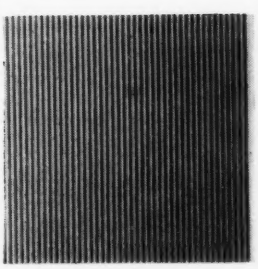
Raised, adjacent lenses diffuse light at moderate angles in all directions. Approx. light transmission: unwired—90%, wired—84%. Uses—interior and exterior industrial glazing.



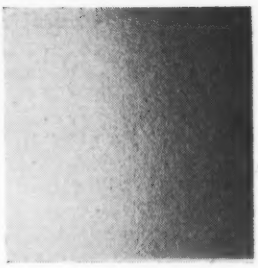
Fine, parallel ribs, approximately 21 per inch, spreading light in one direction—perpendicularly to ribs. Approx. light transmission: unwired — 84.4%, wired — 78.4%. Uses—factory glazing and skylights.



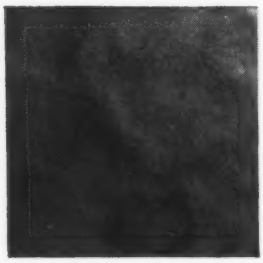
Almost transparent with very fine texture, easy to clean, slight diffusion. Approx. light transmission: unwired — 88.4%, wired — 82.4%. Uses — Industrial and commercial glazing for maximum light transmission.



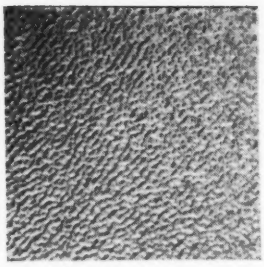
Obscure; 9 parallel ribs per inch; drains off condensation; diffuses light along axis of ribs. Approx. light transmission: unwired — 78.9%, wired—72.9%. Uses —Chiefly for skylights; also suitable for general industrial glazing.



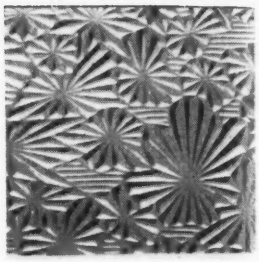
Semi-transparent, with one smooth side and one with multiple bosses creating a fine, stippled appearance. Approx. light transmission: unwired—92.5% (not made in wired). Uses—Interior glazing, also for signs in frosted finest.



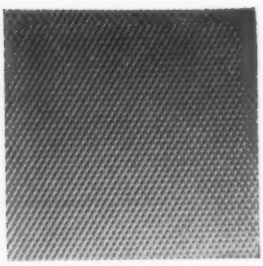
Semi-transparent, slightly diffusing overall pattern. Approx. light transmission: unwired—89% (not made in wired). Uses—Interior glazing, partitions, doors, transoms, shower stall doors.



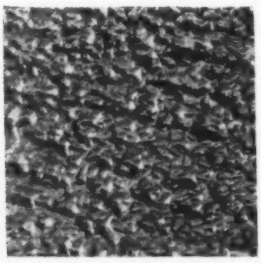
Fairly obscure, finely engraved design for medium light distribution. Approx. light transmission: unwired—86% (not made in wired). Uses—Widely for interior partitions, doors, transoms, and ceiling lights.



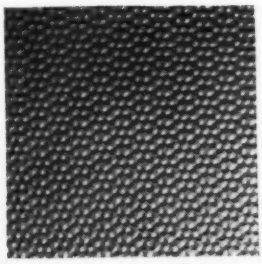
Brilliant floral print without sharp corners and depressions. Approx. light transmission: unwired—86.2% (not made in wired) Uses — Interior glazing — partitions, doors, transoms, shower stall doors.



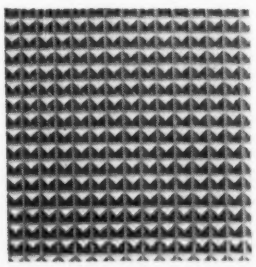
Tiny lens-shaped figures give diffusion over a moderate angle; easily cleaned. Approx. light transmission: unwired — 88.2%, wired — 82.2%. Uses—Primarily for factories; also suitable for some types of commercial structures. Not recommended for office partitions.



Deeply imprinted irregular pebbled design; highly obscure; brilliant appearance; diffuses light at wide angles. Approx. light transmission: unwired—79.7% (not made in wired). Uses —Office partitions and general interior glazing for well lighted privacy.



Small, grouped lenses, spaced to avoid dirt collection. Gives uniform illumination at moderate angle of diffusion. Approx. light transmission: unwired—87.6% (not made in wired). Uses—Interiors and exterior glazing—transoms, partitions, etc. Very popular for outdoor reflective signs.



Pyramid-shaped indentations, 64 per sq. in.; gives obscurity and excellent light diffusion in cross-shaped pattern. Approx. light transmission: unwired—52.3% (not made in wired). Uses—General interior glazing; especially suitable for partitions and doors.

Product	Uses	Light Diffusion and Obscurity	Pattern	Thickness	Standard *Max. Width and Length	Surface: Fire Polished	Surface: Ground and Polished	Surface: Frosted** Max. Width and Length	Surface: Satinol***	Approx. Weight Sq. Ft. Lbs. Glass Only
Hammered	Industrial Glazing	Medium	Raised Adjacent Lenses	1/8"	48" x 132"	X		30" x 132"		1¾ lbs.
				7/32"	48" x 136"	X		30" x 136"		2¾ lbs.
				3/8"	48" x 90"	X		30" x 90"		5 lbs.
				1/2"	48" x 90"	X		30" x 90"		6 lbs.
Ribbed	Industrial Glazing	Medium (Directional Spread)	Fine Parallel Ribs	1/8"	48" x 132"	X		30" x 132"		1¾ lbs.
				7/32"	48" x 136"	X		30" x 136"		2¾ lbs.
				3/8"	48" x 90"	X		30" x 90"		5 lbs.
				1/2"	48" x 90"	X		30" x 90"		6 lbs.
Luminex	Industrial Glazing For Maximum daylight	Slight	Smooth, fine texture	1/8"	48" x 132"	X		30" x 132"	X	1¾ lbs.
				7/32"	48" x 136"	X		30" x 136"	X	2¾ lbs.
Pointex	General Glazing	Slight	Irregular Raised Bosses	1/8" (thin)	48" x 120"	X		30" x 120"		1½ lbs.
Skytex	Industrial Glazing	Good (Directional Spread)	Parallel Ribs	1/8"	48" x 132"	X		30" x 132"		1¾ lbs.
				7/32"	48" x 136"	X		30" x 136"		2¾ lbs.
Velvex	Interior partitions, doors, transoms	Slight	Smooth mottled texture	1/8"	48" x 132"	X		30" x 132"	X	1¾ lbs.
				7/32"	48" x 136"	X		30" x 136"	X	2¾ lbs.
Industrex	Factory Glazing	Medium	Compact, lens-shaped	1/8"	48" x 132"	X		30" x 132"		1¾ lbs.
				7/32"	48" x 136"	X		30" x 136"		2¾ lbs.
Diffusex	Interiors for soft light diffusion	Medium	Elevated small lenses	1/8"	48" x 132"	X				1¾ lbs.
				7/32"	48" x 136"	X	X			2¾ lbs.
Pebblex	Interior Glazing	Good	Irregular-pebbled effect	1/8"	48" x 132"	X				1¾ lbs.
				7/32"	48" x 136"	X	X			2¾ lbs.
Reglex	Interior Glazing	Good	Regular Pyramidal Indentations	1/8"	48" x 132"	X				1¾ lbs.
				7/32"	48" x 136"	X	X			2¾ lbs.
Muralex	Finer Interior Glazing	Good	Finely engraved-indeterminate	1/8"	48" x 132"	X				1¾ lbs.
				7/32"	48" x 136"	X	X			2¾ lbs.
Florex	Interior Glazing	Good	Floral	1/8"	48" x 132"	X				1¾ lbs.
				7/32"	48" x 136"	X				2¾ lbs.

*In some patterns widths are available up to 60 inches depending upon stocks on hand.

**Frosted Glass provides excellent diffusion of light and excellent obscurity

***Satinol Processed Glass provides good diffusion of light and good obscurity with minimum loss of light.

ARM-GLAZE *is* a finished job the *First* time!

WHEN sash is Arm-Glaze'd the job is finished *the first time* . . . no costly, time-consuming sash reconditioning . . . no waiting for putty to "set" before handling and shipping . . . no work stoppages nor crowding anywhere along the line. ***ARM-GLAZE Elastic Glazing Material*** is saving hours of time everywhere it's used and it gets rid of the sash reconditioning headache once and for all! Get the facts about ***Arm-Glaze*** today. Make every glazing job a finished job the first time!

***ARM-GLAZE** Elastic Glazing Material retains its elasticity, never gets rock hard, "gives" with expansion and contraction and absorbs all shocks of normal service. **ARM-GLAZE** seals perfectly and holds a firm bond. Made from the finest materials by an exclusive Armstrong formula, **ARM-GLAZE** has won top place in the glazing industry because it completely eliminates sash reconditioning—because an Arm-Glaze'd job is a finished job the first time!*

Armstrong's Elastic Glazing Compound No. 33—"the layman's glazing material"—is packed in convenient sized metal containers and possesses the same fine qualities of workability and economy as Arm-Glaze. Has a hundred uses in home glazing and plaster patching. Retains its elasticity and non-shrinking qualities indefinitely. Order Armstrong's Elastic Glazing Compound No. 33 for an extra profit item you will be glad to recommend to the home handyman.

THE ARMSTRONG COMPANY

241 SO. POST AVENUE, DETROIT 4065 SO. LA SALLE STREET, CHICAGO 319 SO CROWDUS STREET, DALLAS

WIRE GLASS

Several of the patterns already mentioned can be obtained in wire glass to be used where extra strength and a fire retardant glass is required. Wire glass is made by a continuous rolling process in which the wire, previously chromium dipped to insure clean wire and to improve adhesion to the glass, is embedded as closely to the center of the glass as possible.

In referring to the table (below) bear in mind that sizes shown there are the maximum obtainable. The glass actually used will be of much smaller dimensions. The rules of the National Board of Fire Underwriters limit the size of wire glass which can be glazed in openings exposed to fire hazard. In no case shall the unsupported area of the glass measure more than 48 inches in either dimension or exceed 720 square inches. Typical maximum sizes would be 15 x 48, 18 x 40, 20 x 36, and 24 x 30.

Specifications for Wire Glass

Product	Uses	Light Diffusion and Obscurity	Pattern	Thickness	Standard *Max. Width and Length	Surface: Fire Polished	Surface: Ground and Polished	Surface: Frosted** Max. Width and Length	Approx. Weight Sq. Ft. Lbs Glass Only
Hammered	Windows, skylights and partitions requiring non-scatterable, fire-retardant glass. Registered as Fire Retardant No. R2129 by Underwriters' Laboratories, Inc.	Medium	Raised Adjacent Lenses	¼"	48" x 144"	X		30" x 144"	3½ lbs
				⅜"	48" x 90"	X		30" x 90"	5 lbs.
				½"	48" x 90"	X		30" x 90"	6½ lbs.
Ribbed		Medium (Directional Spread)	Fine Parallel Ribs	¼"	48" x 144"	X		30" x 144"	3½ lbs.
				⅜"	48" x 90"	X		30" x 90"	5 lbs.
				½"	48" x 90"	X		30" x 90"	6½ lbs.
Luminex		Slight	Smooth fine texture	¼"	48" x 144"	X		30" x 144"	3½ lbs.
Skytex		Good (Directional)	Parallel Ribs	¼"	48" x 144"	X		30" x 144"	3½ lbs.
Industrex		Medium	Compact Lens-shaped	¼"	48" x 144"	X		30" x 144"	3½ lbs.
Hex. Mesh Polished Wire		None		¼"	60" x 144"		X		3½ lbs.
Nuweld Polished Wire		None		¼"	60" x 144"		X		3½ lbs.

*In some patterns widths are available up to 60 inches depending upon stocks on hand

**Frosted Glass provides excellent diffusion of light and excellent obscurity

All of the wired patterns mentioned in the table above, with the exception of Nuweld polished wire, contain the conventional hexagonal wire mesh. In Nuweld polished wire, the wires are welded together at each intersection to form a diagonal pattern.

Polished wire glass is ground and polished on both surfaces by a process similar to that used in making plate glass. As a result, maximum vision and minimum distortion is obtained.

AKLO HEAT ABSORBING AND GLARE REDUCING GLASS

Aklo is a "low expansion" patterned and wire glass, blue-green in color, having an extremely high resistance to passage of the sun's infra red heat energy and transmitting daylight of a pleasing and eye-resting quality.

Aklo is also widely used to overcome direct and reflected glare from sunlight. For this purpose, frosted surfacing should always be used.

Aklo is made in the patterns and thicknesses shown in the following table:

Comparative qualities of Aklo and ordinary glass are shown in chart on next page.

Processing

Most types of flat glass can be obtained with various types of processing. One or both surfaces may be sandblasted—either over-all or to designs—and in several textures and depths. The same applies to structural glass which, in addition, may be inlaid with glass of another color.

Glass may be obtained with a variety of edge finish such as ground, ground and polished, penciled (half round), mitered, and bevelled.

Glass may also be obtained cut to pattern shapes, drilled, notched, and with finger pulls.

With the exception of tempered glass, which must have all processing done at the factory before heat treating, most processing is performed by the glass dis-

Product	Uses	Light Diffusion and Obscurity	Pattern	Thickness	Standard *Max. Width and Length	Surface: Fire Polished	Surface: Ground and Polished	Surface: Frosted** Max. Width and Length	Approx. Weight Sq. Ft. Lbs.
figured glass									
AKLO—Hammered	For windows, skylights and transoms to substantially reduce sun's heat, admit daylight and improve illumination	Medium	Raised Adjacent Lenses	⅛"	48" x 132"	X		30 x 132	1¾ lbs
				¼"	48" x 136"	X		30 x 136	3½ lbs
AKLO—Ribbed		Medium (Directional Spread)	Fine Parallel Ribs	⅛"	48" x 132"	X		30 x 132	1¾ lbs
				¼"	48" x 136"	X		30 x 136	3½ lbs.
wire glass									
AKLO—Hammered	Same as for AKLO Heat Absorbing Figured Glass. However, being wired each is a non-scatterable, fire-retardant glass	Medium	Raised Adjacent Lenses	¼"	48" x 144"	X		30 x 144	3½ lbs
AKLO—Ribbed		Medium (Directional Spread)	Fine Parallel Ribs	¼"	48" x 144"	X		30 x 144	3½ lbs
AKLO—Polished Wire (Hex. Mesh only)		None		¼"	60" x 144"		X		3½ lbs.

*Available up to 60 inches depending upon condition of stocks on hand.

**Frosted AKLO provides excellent diffusion of light, high degree of obscurity and effective glare reduction

Thickness and Kind of Glass	Heat						Efficiency
	Heat and Light in Sun's Rays	Heat and Light Reflected from the Glass	Heat of Sun Absorbed by the Glass	Total Heat of Sun Entering Room Through Glass			Ratio of light transmission to heat passing directly through glass
				Reradiated by the glass	Transmitted directly through glass	Total heat entering through the glass	
HAMMERED PATTERN							
1/8" Aklo Glass—Unwired	100.00%	9.60%	56.60%	28.30%	33.80%	62.10%	1.87:1
1/8" Ordinary (Lime) Glass—Unwired	100.00	9.60	3.70	1.85	86.70	88.55	1.03:1
1/8" Frosted Aklo Glass—Unwired	100.00	9.00	68.00	34.00	23.00	57.00	1.87:1
1/4" Aklo Glass—Unwired	100.00	9.60	69.70	34.85	20.70	55.55	2.58:1
1/4" Ordinary (Lime) Glass—Unwired	100.00	9.60	7.40	3.70	83.00	86.70	1.07:1
1/4" Aklo Glass—Wired	100.00	9.60	71.40	35.70	19.00	54.70	2.57:1
1/4" Ordinary (Lime) Glass—Wired	100.00	9.60	11.20	5.60	79.20	84.80	1.07:1
1/4" Frosted Aklo Glass	100.00	9.00	77 40	38.70	13.60	52.30	2.58:1
RIBBED PATTERN							
1/8" Aklo Glass—Unwired	100.00	8.50	56.50	28.25	35.00	63.25	1.87:1
1/8" Ordinary (Lime) Glass—Unwired	100.00	8.50	3.60	1.80	87.90	89.70	1.03:1
1/8" Frosted Aklo Glass—Unwired	100.00	9.00	68.30	34.15	22.70	56.85	1.87:1
1/4" Aklo Glass—Unwired	100.00	8.50	70.80	35.40	20.70	56.10	2.58:1
1/4" Ordinary (Lime) Glass—Unwired	100.00	8.50	7.20	3.60	84.30	87.90	1.07:1
1/4" Aklo Glass—Wired	100.00	8.50	72.60	36.30	18.90	55.20	2.57:1
1/4" Ordinary (Lime) Glass—Wired	100.00	8.50	12.70	6.35	78.80	85.15	1.07:1
1/4" Frosted Aklo Glass	100.00	9.00	77.80	38.90	13.20	52.10	2.58:1
FOR COMPARISON ONLY							
1/8" Aklo Glass—Polished	100.00	8.00	54.00	27.00	38.00	65.00	1.87:1
1/8" Ordinary (Lime) Glass—Polished	100.00	8.00	3.70	1.85	88.30	90.15	1.03:1
1/4" Aklo Glass—Polished	100.00	8.00	71.00	35.50	21.00	56.50	2.57:1
1/4" Ordinary (Lime) Glass—Polished	100.00	8.00	7.50	3.75	84.50	88.25	1.07:1

tributor. Your glass distributor can give you detailed information on processing. He can also furnish you information on measuring, estimating, ordering and installing bent glass. All forms of flat glass, except tempered plate, can be bent, but this is a specialized field requiring your glass distributor's expert advice.

Cutting

Plate glass in larger sizes and several other types of glass will undoubtedly be ordered cut to size from your glass distributor. But window glass and some patterned glass will be cut to size by the lumber and building material dealer. The manner in which this cutting operation is carried out affects profits. Here are some suggestions:

Carry an adequate assortment of sizes in window glass. This reduces cutting loss or wastage. Maintain easily accessible bins clearly marked as to size and keep them as well filled as you can. This will make it possible and convenient to select the most economical size from which to cut the required light.

Never try to cut glass on an uneven or unstable, makeshift surface. Have a good, firm, flat cutting table, reserved for glass cutting only. The top should be covered with heavy felt or carpeting. Keep your table clean at all times; brush off small particles of glass to prevent their scratching the light you are cutting.

Secure good glass-squares and hooked rules. Keep them hung up where they will not be damaged when not in use. Use the best wheel cutter you can buy. It will save you money. Grasp the cutter firmly, as illustrated, and make a clean, straight cut with a free motion and with the bottom edge of the cutter parallel with the surface of the glass. Judge your cut by the "sing" of the cutter so as to get the right pressure. Never run the cutter over the same spot twice. Don't make a "white" cut nor one which flakes.

Snap the glass, after cutting, as illustrated. If the cut is near the edge, use a pair of good glass pliers—not mechanics pliers—keeping the lips of the pliers close to the cutter mark.

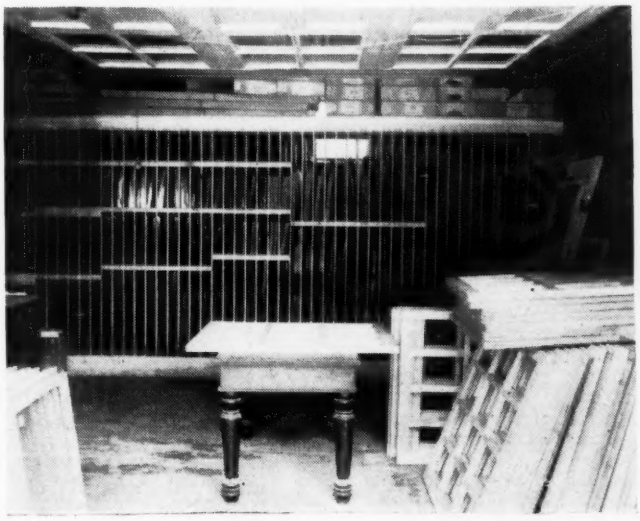
When you have finished, check your light for correct size, return tools to proper places, put cutter in can or jar of light oil. If cutter has started skipping break the handle in two and throw it away so that it can never be used again and cause breakage.

Source of Supply

The source of supply of glass items for the lumber and building material dealer is your glass distributor. The chances are that his representative is already calling on you, that you are already buying some items from him. Get to know him better; ask him for suggestions on building up your glass department. He can give you advice tailored to fit your special requirements. He can give you help on pricing, estimating, and ordering. Also he can be of assistance on technical problems and recommend the proper type of glass to fill specific needs.

A word or two about shipments. The demand for glass is unprecedented. The glass manufacturing industry is producing at the highest rate in history—far greater than during any war or pre-war period. Production facilities have been increased, but whether or not the present rate can be maintained, or increased, depends upon the supply of soda ash, an essential glass ingredient which continues

In these special racks glass can be stored by size and type.



to be in short supply. In spite of high production, supply does not meet demand. Manufacturers are dividing the available glass among the glass distributors in as fair and equitable a manner as possible. So your glass distributor may not be able to make shipments as promptly as he would like or as promptly as he usually does in normal times. But he will do his very best to fill your needs.

But such a situation is not unfamiliar to you. It exists with respect to a very great many of your products. And now is the time for planning. Now is the time to build up your glass department which will permit you to get extra volume during the period of heavy demand and will establish you in a replacement market which is comparatively unaffected by business cycles.

Merchandising Glass

Many lumber and building material dealers have found that glass need not be just a service item; it can be the source of profitable business. The most successful have also found that it pays to set up a glass department in their sales room. It is best to have the cutting table and neat glass bins on the sales floor where customers can observe the cutting operation and be reminded of their glass needs. Such an arrangement will cause them to remember you when they need glass later.

Maintain a floor display in your sales room. Equip several of your sample doors with full length door mirrors. Have on display several small pieces of furniture with glass tops. A sample fireplace with an over-mantel mirror will help sell mantels and hardware as well as mirrors.

Use signs, display material, and mailing pieces which your glass distributor can supply to you. Include glass in your regular advertising and run special glass ads especially just before the fall replacement season. Keep in mind that every customer for other types of material is also a potential glass customer. In many instances bills of material for new construction and remodeling can be increased by the addition of wall, over-mantel, and door mirrors and by glass furniture tops and shelving.

Odd light glazing is profitable business if you are properly equipped. For those customers who wish to make their own replacements, keep packaged putty, glazing points, putty-knives, and glass cutters displayed in your glass department.

No set of merchandising suggestions can fit every individual situation, but there is one important principle which is universally applicable. It is this: glass sales can become important and profitable if they receive careful consideration and planning. A certain amount of glass business will automatically come to you like the demand for nails, cement, and bricks, which everyone takes for granted that you are handling, but to build up your glass volume you must let your customers know that you can supply their glass needs and you must display, advertise, and sell glass aggressively.

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

SALES ITEMS

( ) Glass Blocks
( ) Window Glass
- ( ) "AA" Grade
- ( ) A Grade
- ( ) B Grade
- ( ) Greenhouse Grade

( ) Plate Glass
- ( ) Regular Plate
- ( ) Color Clear Plate
- ( ) Colored Plate
- ( ) Double Glazed Insulating Units
- ( ) Heat Absorbing

( ) Mirrors
- ( ) "A" Quality
- ( ) No. 1 Quality
- ( ) No. 2 Quality
- ( ) Transparent

( ) Tempered Plate Glass
( ) Double Glazed Picture Windows
( ) Structural Glass
( ) Laminated Safety Glass
( ) Wire Glass
( ) Glare Reducing Glass
( ) Frosted Surface Glass
( ) Rolled Patterned Glass
- ( ) Louvred
- ( ) Convex Fluted
- ( ) Wavy
- ( ) Concave Fluted
- ( ) Hammered
- ( ) Ribbed
- ( ) Stippled
- ( ) Diffusing
- ( ) Pebbled
- ( ) Pyramid
- ( ) Floral

( ) Wood Sash Putty
( ) Steel Sash Putty
( ) Glazing Compound
( ) Glaziers Supplies
( ) Plastic Glazing
( ) Wire Reinforced Plastic Glazing

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Items Asked For But Not Normally Stocked

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GLASS BLOCK

The introduction of structural glass block as a building material is one of the important developments in the building industry. Glass blocks are hollow with a sealed-in dead-air space. They are made by shaping two halves in molds which are then fused together in one block. Glass block laid up in panels take the place of the ordinary window frame and sash. However, panels built of them should never be used to carry loads other than their own weight. While masons lay glass blocks, the method by which they are laid differs greatly from that used for laying brick.

In the sash replacement market there are several factors which help the dealer sell glass block. Repeated expense for painting, caulking and replacement of sash destroyed by condensation and corrosion is eliminated, and cleaning is much simpler. These factors are important particularly in factory work.

Lighting can be controlled to some extent by the proper use of prismatic or light directional glass block, in some instances lighting the interior at some distance from the window. The insulation value of glass block is considerable, helping both heating and cooling loads and inside condensation problems.

Glass block panels are easily erected by regular masons. Metal ties are needed only when the area exceeds 50 square feet.

For interior partitions the set-in-wood glass block partition has a rapidly growing market. Easy and clean to erect, and completely demountable these partitions may be used for temporary or permanent locations. Offices may be rearranged, rest rooms for women can be partitioned off in plants where women are employed.

Partitions to divide living room and dining room or hall, without loss of light, to separate the dinette from the kitchen or to provide a playroom in the basement, can be erected easily without the inconvenience and dirt of plaster or mortar.

Glass block are made 5¾", 7¾" and 11¾" square.

Estimating Data:

For 100 sq. ft. of panel laid with ¼" visible mortar joints:

Size of Block	6"	8"	12"
No. of Blocks required.	400	225	100
Weight of Panel	2000 lb	1800 lb	1900 lb
Volume of Mortar....	4.3 c.f.	3.2 c.f.	2.2 c.f.

Mortar is made of 1 part portland cement, 1 part lime and 4 to 6 parts sand measured by volume. To this is added a waterproof compound, using one quart of compound to 1 bag of cement.

A one sack mix (1 sack of cement, 1 sack of lime plus 6 cu. ft. sand) produces 6.70 cu. ft. of mortar.

Section 5

Paint, Wallpaper & Decorating

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Coverages
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Application Rules
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For Related Sections See Master Index

For a lumber and building products merchant to fail to merchandise paint would be as inconsistent as a drug store handling tooth brushes to neglect to sell tooth paste.

Nearly every construction package sold in lumber yards requires one or more items of surface finish for completion.

In addition to their being an automatically related item with most building material sales, paint and decorative materials can stand on their own feet as a profitable department by themselves.

Further, a paint department is a most effective consumer traffic builder (especially the much-to-be-desired woman customer) and paint sales are often the opening wedge to important sales in other departments.

In new home contracts the painting and decorating subcontract usually runs about 6 percent of the total, but in the dealer's volume this percentage rises to as much as 15-18 percent of the overall sales total because of the replacement element in paint sales.

Because of the turnover potential this volume can be had with a paint store constituting as little as 7 percent of the total inventory.

The surface of practically everything in home, farm, commercial and industrial housing requires painting for protection, economy or beauty or all three!

While the new construction paint market presents a semi-automatic sale—if the business is asked for—the replacement market requires creative selling.

And for the creative salesman this market is practically unlimited. Americans generally neglect their multiple painting needs and most are unconscious of the high cost of not protecting surfaces.

For example, 90 percent of all the farm buildings in the country need painting.

There are only two obstacles to the profitable operation of a paint department: Technical details and competition.

In a sense these compensate for each other. Furthermore, the lumber dealer has an inside track in this competitive race because he sells the materials whose surfaces are to be painted.

Successful paint selling requires: a detailed knowledge of the best paint for each use, of alternate paints for varied needs, of color harmony and decorative good taste, of how to apply paint, of how to estimate paint quantities and applied jobs, of the causes for paint failure, etc.

In no branch of the building industry are the manufacturers organized to give as complete merchandising support to the dealer as in the paint industry. There are more than eleven hundred manufacturers of paint and they are constantly vying with each other in creating better promotional campaigns, educational programs and dealer helps.

The dealer who wishes to lift himself above routine competition may organize to sell paint jobs applied to the consumer as well as paint to the contractor, using the first to support the second. Varied techniques may be used to control the package sale without contracting.

Available painters may be kept continuously employed if the dealer will sell deferable interior jobs (at a com-

pensated discount) to be applied by the contractors when inclement weather prevents exterior work.

Dealers who sell applied jobs report departmental net profits of 3 to 4 times straight material sales. In spite of this, however, most lumber dealers as yet find very satisfactory profits in a policy of selling materials only in this department.

Paints and varnishes are used to protect and decorate surfaces of wood, metal, and other materials. They are applied with a brush or sprayed in thin coats, which harden after application.

A paint is essentially a mixture of solid and liquid which gives an opaque coating; a varnish is essentially a liquid which gives a transparent coating. The solid matter in paint is the pigment or coloring matter. The liquid (linseed oil, for example) is called the vehicle. While varnish is used in very much the same manner as paint, it could not properly be classified as paint, because it does not contain any solid particles of pigment. On the other hand, white wash, which is not ordinarily called a paint (largely because of its cheapness) complies with the definition.

Composition

(A) **House Paints**—The principal ingredients of house paint are powder pigments and the liquid binder that holds them together. The basic elements in exterior house paint are white lead, zinc oxide and titanium oxide. Liquid binders which have the property of drying hard are: linseed, soya bean, castor oiticica, walnut, fish, tung and perilla.

Inert pigments are used to supplement lead, zinc and pure titanium. They do not have the opacity or hiding power of these three, but they do increase film strength and durability. Driers are added in small amounts to speed up hardening of the paint film. Driers normally draw oxygen from the air and transmit it to the oil in a paint film, thus hastening the oil's natural ability to dry hard.

Thinners, such as turpentine, are added to permit the paint to brush or spray easily.

(B) **Varnish**—Varnishes consist of resins melted and cooked in drying oil. Driers are usually added. Resins are solid, translucent substances, including plain resin, ester gums, natural gums from the East Indies, and many synthetically made resins.

Varnishes for exterior purposes are usually long in oil.

Interior varnishes are short in oil (long in resin) so they will dry very hard, resist abrasion.

Varnishes may be classed as spirit varnishes and oil varnishes. Spirit varnishes are simply solutions or partial solutions of resinous substances in volatile solvents. Shellac varnish is a solution of gum shellac in alcohol. Damar varnish is a solution of damar resin in turpentine. In this class may be included the collodion or zapon varnishes, which are solutions of nitrated cellulose in solvents such as amylacetate and alcohol-ether mixtures. Oil varnishes are not made by simple solution of varnish resins in solvents. The important varnish resins, of which there are quite a number, as kauri, Manila copal, Zanzibar copal, etc., are not soluble in their original condition. The varnish maker can, however, by heating and addition of drying oils and drying metals, produce a substance which can be thinned with some volatile thinner to produce the well-known oil varnishes. Oil varnishes differ widely in properties, and there is no easy way of determining their quality. In general, common rosin as a constituent in considerable quantity causes the varnish to be of inferior quality, giving a film which turns white on exposure to water and does not last well. Some excellent varnishes, however, are made with rosin and China wood oil. Oil varnishes generally contain from 40 to 60 percent of volatile thinner (turpentine or light mineral oil). "Long-oil varnishes"—that is, those which contain a large amount of drying oil (say, 40 to 60 percent drying oil and from 5 to 20 percent resins)—yield coats which while not so hard are more resistant to weather than those produced by "short-oil varnishes"; that is, those which contain a relatively large amount of varnish resins (say, 20 to 35 percent resin and 25 to 40 percent drying oil). A spar varnish may be taken as an example of a long-oil varnish, a rubbing varnish as an example of a short-oil varnish.

(C) **Enamels**:—Enamels consist of colored pigments ground in varnish. Their formulation is a highly developed art. They must brush easily, cover well, and, particularly, flow out so that they are free of brush marks. They must also dry quickly. Enamels are made with long or short oils for exterior or interior use, respectively. Semi-gloss enamels are made with semi-gloss varnishes.

(D) **Wall Paints—Oil**:—These paints are made up to combine the properties of easy flow, opacity or hiding power, and quick drying.

Ingredients are drying oils (linseed oil, treated), volatile thinners and pigments consisting of Titanium and Lithopone (a zinc product).

(E) **Wall Paints—Emulsion**:—Resin emulsion paints have a small amount of resin or oil emulsified in water, plus a moderate amount of casein binder. They have little odor and may be thinned down to brushing consistency with water.

(F) **Wall Sealers**:—Wall sealers may be either clear varnish or pigmented varnish. Their purpose is to seal and neutralize highly porous walls so that paint applied over them will dry to an even surface.

(G) **House Paint Primers**:—House paint primers have much the same functions. Pigment is ground in treated oils to produce a coating that provides the proper foundation,—a thoroughly sealed surface for house paint.

(H) **Bronze Paints**:—Bronze paints, which are frequently used for coating metal, such as radiators, consist of finely divided metal in a vehicle of celluloid varnish (so-called "banana oil"), being a solution of nitrocellulose in amyl acetate. This has a very disagreeable odor, and as a good bronze paint can be made with a pale China wood oil-resin varnish with petroleum-oil thinner, this type is generally to be preferred. This pigment (finely divided aluminum) in aluminum-bronze paint usually amounts to from 15 to 19 percent.

(I) **Whitewash**:—The cheapest of all paints is whitewash. Lime, which is the basis of whitewash, makes a very sanitary coating and is, hence, to be preferred for cellars and the interior of stables and other outbuildings. Ordinary whitewash, made by slaking quicklime and adding water to produce a mixture of proper and uniform spreading consistency, affords the most sanitary coating, but does not adhere so well as does whitewash to which certain additions are made. Five pounds of quicklime will suffice to make about one gallon of ordinary whitewash.

(J) **Calcimines or Cold-Water Paints**:—Calcimines have as their bases whiting, clay, silicates, etc., instead of caustic lime, as in whitewash. These materials do not adhere, and it is necessary to use a binder of some kind, generally glue or casein.

(K) **Enamel Undercoats**:—Enamel undercoats seal the surface but in addition provide a heavy film which will help obscure the defects in the surface and which may be easily sandpapered down to a perfectly smooth foundation for the enamel.

(L) **Oil Colors**:—Colors in oil are basic colors ground in linseed or other oils, and are used for tinting or shading all types of paint.

(M) **Varnish Stains**:—Varnish stains consist of small amounts of pigments ground in varnish to produce a semi-opaque finish for imitating natural wood effects.

(N) **Wood Stains**:—Wood stains are earth pigments or aniline dyes ground in treated oils or simply dissolved in thinners, to produce in low cost woods the color appearance of mahogany, walnut and other fine woods.

(O) **Shingle Stains**:—Shingle stains are similar to paints but are made much thinner and usually contain coal-tar creosote as part of the vehicle, thus assisting in preserving the wood. The pigment should be of the best quality, have the maximum color strength, and should be exceedingly finely ground in oil. The amount of pigment seldom exceeds from 1½ to 2 pounds to the gallon of stain. The vehicle is generally about 40 percent creosote oil, 40 percent heavy benzene, and 20 percent benzene Japan drier. It is best to dip the shingles in the stain before putting on the roof, but shingle stains are frequently applied with a brush. A shingle stain is intended primarily to preserve the wood, but on account of appearance the shingles should

be uniformly colored, hence the pigments used should possess great color strength and be very opaque.

(P) **Shellac:**—Shellac is made of shellac gum dissolved in alcohol; is widely used because of its long established ability as a sealer.

(Q) **Lacquer:**—Lacquer is nitrocellulose (gun cotton) dissolved in suitable thinners. Oil or resin may be added to improve the gloss and flexibility of the film. Pigments are ground in this mixture if a colored lacquer is desired.

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

Sales Items.

Home and Farm Paints

Exterior Paints
- ( ) Dealer Mixed
- ( ) Factory Mixed
- ( ) Mixed on the Job Site
- ( ) White Lead & Oil

Exterior Paint Colors

	Percent of Normal Sales
( ) Black	1%
( ) Blue	1%
( ) Cream	10%
( ) Dark Brown	5%
( ) Gray	8%
( ) Green	7%
( ) Ivory	5%
( ) Orange	1%
( ) Light Brown	5%
( ) Red	2%
( ) White	50%
( ) Yellow	5%

Interior Paints
- ( ) Calcimine
- ( ) Cement Type Wall Finish
- ( ) Enamel Fnishes
- ( ) Flat Wall Paints
- ( ) Gloss Wall Paints
- ( ) Resin Emulsion Paints
- ( ) Self Priming Hot Wall Paint
- ( ) Semi-Gloss Wall Paints
- ( ) Water Mixed Paint

Interior Paint Colors

	Percent of Normal Sales
( ) Beige	5%
( ) Blue	5%
( ) Buff	5%
( ) Cinnamon	1%
( ) Cream	10%
( ) Gray	5%
( ) Green	15%
( ) Ivory	25%
( ) Orange	1%
( ) Orchid	1%
( ) Peach	5%
( ) Pink	5%
( ) Tan	2%
( ) White	10%

Enamels
- ( ) Automobile
- ( ) Deck
- ( ) Egg-Shell
- ( ) Exterior
- ( ) Glass
- ( ) Porch
- ( ) Screen
- ( ) Semi-Gloss
- ( ) Stove Pipe
- ( ) Truck & Tractor

- ( ) Barn & Silo Paints
- ( ) Shingle Stains
- ( ) Wood Finishes
- ( ) Wood Stains

Roof Paints
- ( ) Aluminum
- ( ) Asbestos (Asphalt Base)
- ( ) Asphalt
- ( ) Asphalt Aluminum

Varnishes
- ( ) Color
- ( ) Exterior
- ( ) Floor
- ( ) Furniture
- ( ) Gloss
- ( ) Linoleum
- ( ) Spar
- ( ) Trim

Industrial Paints
- ( ) Acid Resisting Paints
- ( ) Alkali Resisting Paints
- ( ) Aluminum Coatings
- ( ) Blue Lead
- ( ) Cement Paint
- ( ) Deck Enamels
- ( ) White
- ( ) Galvanized Iron Primers
- ( ) Heat Resisting Paints
- ( ) Industrial Enamels
- ( ) Metal Paints
- ( ) Mill White Gloss
- ( ) Mill White Semi-Gloss
- ( ) Red Lead
- ( ) Spar Varnish

Varnish Colors
- ( ) Dark Oak
- ( ) Light Oak
- ( ) Mahogany
- ( ) Walnut
- ( ) Maple

Shingle Stain Colors
- ( ) Brown
- ( ) Gray
- ( ) Green
- ( ) Red

Wood Finish Colors
- ( ) Bleached Mahogany
- ( ) Blonde
- ( ) Cactus Green
- ( ) Cinnamon
- ( ) Clear Pine
- ( ) Mahogany
- ( ) Maple
- ( ) Natural Oak
- ( ) Platinum
- ( ) Sandalwood
- ( ) Walnut

Floors & Furniture
- ( ) Bleaches
- ( ) Cover Polish
- ( ) Crack Filler
- ( ) Enamels
- ( ) Fillers
- ( ) Gloss Varnish
- ( ) Oils
- ( ) Paste Wax
- ( ) Polishing Wax
- ( ) Scrapers
- ( ) Stains
- ( ) Wax
- ( ) Varnish (Flat)

Wall Paper Accessories
- ( ) Casein Glues
- ( ) Ground Glue
- ( ) Dry Paste Flour
- ( ) Lacquers
- ( ) Liquid Glue
- ( ) Paint Deodorant
- ( ) Plaster of Paris
- ( ) Scrapers
- ( ) Wall Paper Cleaner
- ( ) Wall Paper Paste
- ( ) Wall Paper Remover
- ( ) Wall Size

Staples in Paint Department
- ( ) Benzine
- ( ) Benzol
- ( ) Boiled Linseed Oil
- ( ) Bronzing Liquid
- ( ) Calcimine
- ( ) Denatured Alcohol
- ( ) Distilled Turpentine
- ( ) Floor Oil
- ( ) Glazing Liquid
- ( ) Japan Dryer
- ( ) Liquid Dryers
- ( ) Mineral Spirits
- ( ) Mixing Oil
- ( ) Oil Tinting Colors
- ( ) Oil Wood Stains
- ( ) Oxalic Acid
- ( ) Polishing Oils
- ( ) Primers
- ( ) Raw Linseed Oil
- ( ) Roof Cement
- ( ) Sealers
- ( ) Shellac
- ( ) Thinners
- ( ) White Lead
- ( ) White Wash
- ( ) Wood Fillers

Miscellaneous Sales Items
- ( ) Curtain Rods
- ( ) Curtain Stretchers
- ( ) Decalcomanias
- ( ) Fabric Wall Coverings
- ( ) Leather Preservers
- ( ) Rug Cleaners
- ( ) Unpainted Furniture
- ( ) Window Shades
- ( ) Window Shade Rollers

Paint, Wallpaper, Etc.

Wall Papers
- ( ) Conventional
- ( ) DDT Coated
- ( ) Fabric Weave
- ( ) Ready Pasted
- ( ) Stain Proof
- ( ) Trims

Accessories
- ( ) Blow Torches
- ( ) Brackets
- ( ) Brushes
  - ( ) Calcimine
  - ( ) Duster
  - ( ) Enamel
  - ( ) Flat
  - ( ) Flowing
  - ( ) Oval
  - ( ) Paste
  - ( ) Radiator
  - ( ) Roof
  - ( ) Trim
  - ( ) Smoothing
  - ( ) Varnish
  - ( ) Wall
- ( ) Brush Cleaners
- ( ) Caulking Cartridge
- ( ) Caulking Compound
- ( ) Caulking Guns
- ( ) Chamois
- ( ) Cleaning Cloths
- ( ) Crack Filler
- ( ) Paste Cleaners
- ( ) Decalcomanias
- ( ) Drop Cloths
- ( ) Felt Rubbing Pads
- ( ) Glazing Points
- ( ) Ladders
  - ( ) Brackets
  - ( ) Extension
  - ( ) Hooks
- ( ) Scaffold
- ( ) Step
- ( ) Mixing Paddles
- ( ) Overalls & Caps
- ( ) Paint Brush Bath
- ( ) Paint Cleaners
- ( ) Paint Remover
- ( ) Paint Washing Compound
- ( ) Patching Plaster
- ( ) Pumice Stone
- ( ) Putty Knives
- ( ) Roller Stipplers
- ( ) Sand Paper
- ( ) Scraping Knives
- ( ) Sponges
- ( ) Sprayers
- ( ) Steel Wool
- ( ) Strainer
- ( ) Utility Tape
- ( ) Varnish Remover
- ( ) White Wash
- ( ) Whiting
- ( ) Window Glass
- ( ) Wire Brushes
- ( ) Wood Putties

Items Asked For But Not Normally Stocked

For fine finishing on wood, metal, plastic or any commonly used material, Duratite Wood Dough (for large cavities), Duratite Surfacing Putty (for smaller cavities). In seven wood colors everyone wants, in tubes and cans in a variety of sizes. Ask your jobber or write

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Used by millions since 1923. Flexible...waterproof ...heatproof
Write for catalog of full line of adhesives.

DURATITE
WOOD DOUGH and SURFACING PUTTY

Color:

Choosing the Color:—Color is just as important in the sale of paint as design is in the sale of automobiles. The dealer or clerk who knows how to use colors can outsell his competitor who doesn't, three to one. Paint manufacturers include among their dealer helps, color charts, wheels and color chips, as well as suggested decorative schemes for interior and exterior painting.

Houses that appear too tall can be lowered through the use of a darker color on the roof or upper shutters. A house with too many gables should have all areas painted the same color with emphasis on the front door or first floor shutters. Dormers on a small house should be painted the color of the house, while those on a large house should be painted to blend with the roof. It is usually best to paint chimneys the color of the house. When there are windows of various sizes and shapes, paint them to match, rather than contrast with the house.

Light colors in general make things appear larger and dark colors make them seem smaller and less conspicuous. Where trim is heavy and ornate, paint body and trim alike.

In the interior, a square room can be given more interest by painting one wall a different color or value. This is

All "ayes" are on STYLE-TESTED PAINT COLORS

From Grandma to Teen-Ager, women will like Style-Tested Paint Colors for they are in perfect harmony with the very latest and accepted color trends in modern home decoration.

You see, women give Lowe Brothers Style-Tested Paint Colors the nod of quick approval because they have been Style-Tested by a foolproof Color Research Plan. They are the colors your customers *are actually buying* for home decoration today.

Style-Tested Colors reduce markdowns and close-outs. They eliminate obsolete colors and *speed* the turnover of *minimum* stock. Sold *and* used without muss, fuss or bother, they save your sales effort and time—for they are all ready to use, just as the customer wants them.

Yes—Lowe Brothers quality Style-Tested Colors enable you to stock, *and sell easier and faster,* only *wanted* paint colors.

THE LOWE BROTHERS COMPANY
Dayton, Ohio

LOWE BROTHERS
Style-Tested
PAINT COLORS

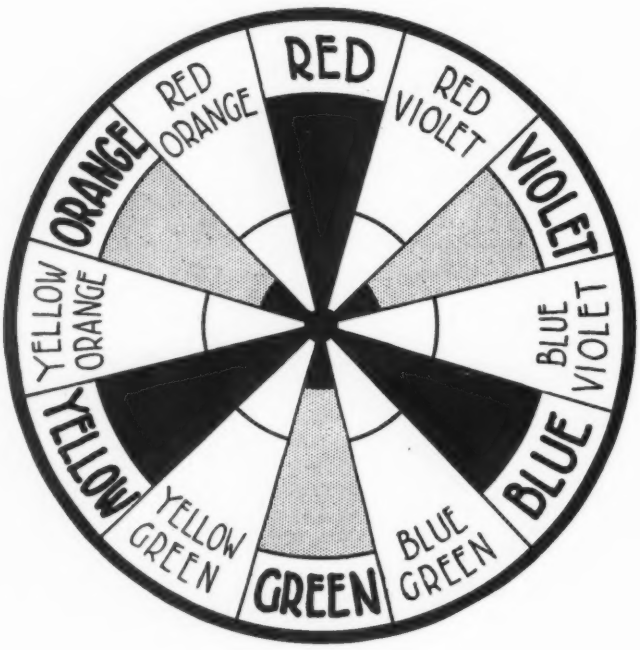
Ready for use — *without extra service effort* — the colors which women want and are buying today.

Lowe Brothers
PAINTS ★ VARNISHES

usually the fireplace wall, a window wall or a wall opposite a window. Long and narrow rooms can be foreshortened by painting the end walls darker than the long side walls. When the room is too high, paint the ceiling darker than the walls, and if too low, paint it lighter.

Light colors make the room seem larger and dark colors make it seem smaller. When walls and woodwork are painted the same color the rooms will have a more spacious effect.

Warm colors, such as ivory, yellow, peach, rose, tan and beige should be used in rooms receiving cool lights, usually northern and eastern rooms. The cool colors, such as gray, blue green and green, used in southern and western exposures where warm light is received.



RED—No pigments are pure red. See orange red and red violet for nearest colors.

ORANGE-RED—Bulletin red, venetian red, burnt sienna.

ORANGE—Orange or dark chrome yellow, indian yellow.

ORANGE-YELLOW—Medium chrome yellow, raw sienna, yellow ochre, cadmium yellow.

YELLOW—No pigments are pure yellow. Mix medium chrome yellow with light (lemon) chrome yellow.

GREEN-YELLOW—Light (lemon) chrome yellow, zinc yellow, gamboge, aureolin.

GREEN—Light, medium or dark chrome green, Chromium oxide.

BLUE-GREEN—Chrome green dark.

BLUE—Prussian blue, chinese blue.

VIOLET BLUE—Ultramarine blue, cobalt blue.

VIOLET—Tuscan red, rose pink, indian red, orchid tinter.

RED VIOLET—Rose lake, carmine.

Reviewing what we learned in school by looking at the color wheel, we remember that the three primary colors are red, yellow and blue, that the mixing of any two primary colors produces a secondary color; yellow and blue produce green, red and blue produce violet, and yellow and red produce orange. Thus, green, violet and orange are secondary colors as they are made by mixing two primary colors. Or, if we carry this one step further and mix one secondary, with one of the primaries next to it on the color wheel, we get what are sometimes called tertiary colors, such as yellow green, green blue, violet blue, red violet, orange red and orange yellow. By varying the proportions of the colors mixed we can, for instance, have a yellow green which is more yellow or more green, depending on which of the mixed colors predominate.

Thus, by using the three primary colors we can obtain any color of paint we wish, even down to the subtlest variation, merely by using the proper proportions. However, pigments are very seldom pure primary colors, and therefore the actual color makeup of the pigments must be considered when mixing. As an example, venetian red is actually an orange red, whereas roselake and carmine are red violet, there being no pure spectrum red.

The accompanying table gives the pigment names which may be classed under the various color wheel names.

Application Counsel:

Preparation and Application:—Clean, smooth and dry are the primary requirements of the surface to be painted. Most new window and door frames and trim should be primed to specifications at the mill if possible, and only raw edges and exposed ends need to be primed on the job. Siding, flooring and exposed timbers should be given a first coat as soon as possible to prevent absorption of moisture. Knots, pitch pockets and sap streaks should be covered with orange or white shellac or spar varnish before the prime coat is applied.

Nail holes, cracks and joints should be filled and smoothed with putty, and dirt and sawdust removed. Rough spots should be smoothed with sandpaper and dusted. Crevices, especially found at door and window frames, should be filled with plastic caulking compound applied with a pressure-gun.

Metal Surfaces—Should be swept clean of dust, wire-brushed to remove scale, loose paint and other foreign deposits. Steel surfaces can be cleaned quickly with a flame burner or torch.

Concrete Surfaces—Brush off all dust and loose aggregate. If concrete is disintegrating due to chemical reactions, clean off surface and wash with clean water. Allow surfaces to dry before applying coatings.

New Concrete Floors—Before painting wash the surface with a zinc sulphate solution—2 pounds of Zinc Sulphate to a gallon of hot water—allow to dry and then sweep off the surface before applying.

Galvanized Iron Surfaces—Before painting new galvanized iron surfaces, wash with acetic acid or vinegar. (Commercial acetic acid 28 percent) should be diluted four parts water to one part acid. For best results allow new galvanized surfaces to weather for approximately four to six months before painting.

For a perfect paint job, two or three coats of paint should be applied in accordance with the manufacturer's directions.

When painting, a free, easy stroke should be cultivated, since short, jerky strokes result in an uneven surface, and too long a stroke gives an uneven surface and wears out the brush. Paint should be applied with the ends of the bristles and the sides for an inch or two; if the sides only are used the paint is not applied satisfactorily and the brush is worn out more rapidly. Brushes should be reversed at frequent intervals so they will wear evenly on both sides.

Even good paint cannot do a good job unless the surface is properly prepared. When applied over a poorly prepared surface, the result is usually plenty of trouble.

A careful inspection of the surface to be painted will reveal what is needed to put the surface into paintable condition. If previous paint jobs have been well done, the surface will be gradually chalking. This film wears away evenly, remains intact, and provides a suitable film for repainting, avoiding the expense of extensive preparatory work. Often a thorough cleaning is all that is necessary.

If the former job was done with poor paint and/or poor workmanship, the surface will require proper preparation before painting can begin.

To make the surface clean, smooth and dry, it may be necessary to remove chipped and peeled paint by burning and scraping. When the blow-torch is used, the flame should be directed horizontally or downward, following with the scraper while the loosened film is soft. There should be just enough heat to raise the film and avoid charring or setting fire to the wood. Extreme care must be used on account of fire hazard.

When filling cracks the putty should be pressed into the cracks, and nail holes cut off and smoothed with a putty knife. At least one coat of paint should be on the wood and dry before putty is used. Closing and sealing of large

SELL Beauty—too!

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If you are a top notch lumber and building supply dealer we want you as a dealer for BROCADO DESIGN.

Our factory representative can prove to you that BROCADO DESIGN covers like plaster and simultaneously decorates with beauty. It is easy to apply—it's permanent, beautiful, profitable—and the BROCADO sales policy is rigid.

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If you are the progressive live wire dealer in your town, learn more about BROCADO DESIGN by tearing out this ad, attaching to your letterhead and mailing to me today. It's like mailing for future profits.

Garth W. Benepe
President

664 NORTH MICHIGAN AVE. **BRO-CA-DO INC.** **CHICAGO 11, ILLINOIS**

Table of covering capacities

Material	Kind of surface	Covering capacity per gallon		
		Primer, or 1st coat	2d coat	3d coat
Exterior paint	Plain siding and trim	468 sq. ft.	540 sq. ft.	630 sq. ft.
" "	Exterior trim	850 " "	900 " "	972 " "
" "	Porch floors and steps	378 " "	504 " "	576 " "
" "	Shingle siding (not including trim)	342 " "	423 " "	
" "	Shingle roofs	150 " "	250 " "	
" "	Picket fences (average type)	650 " "	675 " "	675 " "
" "	Plain fences (average type)	468 " "	540 " "	630 " "
" "	Brick	200 " "	400 " "	420 " "
Stain	Shingle siding (not including trim)	150 " "	225 " "	
"	Shingle roofs	120 " "	200 " "	
Waterproof cement paint	Smooth face brick	100 " "	150 " "	
" " "	Smooth cement walls	120 " "	162 " "	
Exterior paint	Sheet metal (flat)	550 " "	600 " "	
" "	Corrugated metal[1]			
" "	Steel sash	981 " "	1,000 " "	1,350 " "
Interior oil paint	Doors and windows	603 " "	495 " "	540 " "
Flat finish	Smooth plaster	720 " "	630 " "	700 " "
" "	Sand-finish plaster	297 " "	450 " "	486 " "
Gloss or semigloss	Smooth plaster	720 " "	540 " "	540 " "
" " "	Sand-finish plaster	297 " "	395 " "	450 " "
Glazing and mottling	Smooth plaster	1,080 " "		
" " "	Sand-finish plaster	900 " "		
Water size	Plaster	720 " "		
Oil size	Plaster	720 " "		
Calcimine	Plaster (sized)	240 " "		
Casein paint	Over-painted surface	423 " "		
" "	Smooth plaster	540 " "	700 " "	
" "	Sand-finish plaster	356 " "		
" "	Cement or concrete block	333 " "		
Stainfill	Floors	505 " "		
Shellac	Floors	680 " "		
Varnish	Floors	540 " "	540 " "	
Wax and polish	Floors (over shellac)	1,080 " "		
Floor sealer	Floors (maple and pine)	630 " "	1,260 " "	
" "	Floors (oak)	720 " "	1,260 " "	
Enamel	Doors and windows	603 " "	405 " "	504 " "
"	Picture molding, chair rail (up to 6" wide)	1,200 lin. ft.	810 lin. ft.	810 lin. ft.
Interior oil paint	" " " " " "	1,200 " "	900 " "	900 " "
" " "	Floors	540 sq. ft.	450 sq. ft.	

[1] Same as for sheet metal, but add 9 percent to flat area.

cracks can be done with a caulking compound forced into the crevice with a pressure-gun.

Sometimes the surface can be smoothed and blemishes removed with a wire brush, sandpaper or steel wool.

Painting Plaster:—Plaster surfaces should be examined for construction faults before the paint is applied, and danger of water leaks should be eliminated.

If plaster has been applied directly on tile, brick or cement construction, the surface should be examined for signs of efflorescence. When this condition exists, the affected area should be replastered, or a lathing or waterproofing used on the tile. A zinc sulphate solution should not be used on plaster.

Damp plaster walls can now be painted safely by selecting the proper paint materials. Glue and varnish sizes should be avoided. To insure against blistering and peeling, select oil base rather than varnish base paints.

And always follow detailed directions for use of paints.

For specific paint jobs, such as flooring, roofing, farm buildings, etc., best results are obtained by following directions given by the manufacturer. If special problems arise, paint manufacturers will be glad to give more specific and detailed instructions.

Suggestions for Non-Professional Painters

For promotion of better painting results by so-called amateur painters—"most of whom can turn out a mighty neat performance if they try"—the Canadian Paint, Varnish hand Lacquer association has issued 14 **rules.** Some of these, it is commented, may be new, but most of them are long established and fundamental. All are simple and it is suggested that they be reviewed and observed when a paint job is to be done.

The 14 rules are as follows:

1. Use a good quality paint. If the job is worth spending time on, it deserves a paint that will give best results.

2. Stir the paint thoroughly before using. Everybody knows that should be done, but plenty of people still are inclined to skimp on the stirring.

3. Be sure that the surface to be painted is absolutely free from dirt, oil or grease—and of course make sure it is dry.

4. Follow the directions on the can—the manufacturer really knows best how his product should be used. He has spent a lot of time and money to find out.

5. When, or if, paint needs thinning, thin it sparingly—with turpentine. Don't try thinning with linseed oil. The paint may go farther if you do, but it won't stand up as well because the careful balance between oils and pigments has been upset.

6. Use a good quality brush. It pays off in a better paint job.

7. If it is a new brush, give it a 24-hour soaking in linseed oil before putting it in the paint.

8. Use a sensible size of brush. Don't try to do a wall with a little brush, and don't try to do fine work, or get into tight corners, with a big brush.

9. Allow plenty of time between coats. Not just enough time so that the paint is no longer tacky, but enough time so that it has dried hard and firm.

10. Do your painting when the air is warm and dry for best results. In interior painting, make sure that there is plenty of air circulating.

11. In choosing paint colors from color chips in paint dealers' stores, remember that the color of the finished job will be somewhat deeper than that of the color chip, because the color has been applied to a greater area.

12. If the surface hasn't been painted before, use a good primer sealer undercoating for the first coat.

13. Two thin coats are always better than one thick one.

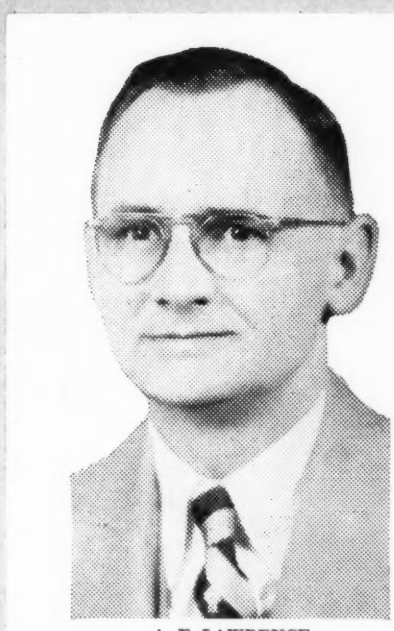
14. Remember the simple rules of color—that blues, greens and allied tints are **cool** colors and that yellows and orange shades are **warm;** that light colors in a room give an impression of greater spaciousness and darker shades do the opposite.

Removing Paint and Varnish.

The most efficient method of removing old paint and varnish is by burning with a painter's torch. The heat causes the film to soften and it can be scraped off. This method, however, can only be used on flat surfaces and where slight scorching of the wood is not objectionable. A hot solution of caustic soda (concentrated lye), one pound to the gallon, is also quite efficient. This should be applied with a fiber (not bristle) brush until the paint softens. This is very hard on the hands and also raises the grain of the wood, and surfaces treated with it should be thoroughly washed with water and allowed to dry before repainting. It will also be necessary to sandpaper such surfaces.

There are a number of paint and varnish removers on the market, most of which consist of mixtures of benzol, acetone, and methyl alcohol, with frequently the addition

(Continued on Page 180)



A. F. LAWRENCE
Woonsocket, R. I.

"My success has been based on selling high quality merchandise"

This excerpt from a letter by A. F. Lawrence of the Service Sales Company, Woonsocket, R. I. says far better than we could what Brushes by Pittsburgh means to this progressive dealer: "I have been selling the consumer, contractor, master painter and Purchasing Agents for 23 years and can truthfully state that my success has been based on selling high quality merchandise. I am convinced that Pittsburgh Brushes are what the public desires as they have always satisfied their varied requirements. In my opinion, and I believe I also speak for my customers, it is equally important to use a Pittsburgh brush as it is to use a high quality paint and varnish."

BRUSHES by PITTSBURGH

A full line for every painting need

THREE FAMILIES

Pittsburgh's 100% Pure Bristle. No finer brush made today.

Pittsburgh's exclusive Bristle-Neoceta. Top quality performance. Cost about one-third less.

Pittsburgh's 100% Neoceta. Cost about half as much as pure bristle, yet gives excellent performance and has special advantage, such as high resistance to water.

AND . . . as soon as possible
Gold Stripe
the supreme quality brush for every painting need

PITTSBURGH
PLATE GLASS COMPANY Brush Division

Not for just a season; not for just a year; but steadfastly in good times and bad, for more than a generation, national advertising has modestly presented the tested and reliable qualities of *KYANIZE* to millions of good customers and prospects . . . many of them within your reach.

KYANIZE advertising continues with its ever-widening influence to reassure old and attract new customers for both of us.

For users, the LIFE of the surface; for dealers, the LIFE of the store.

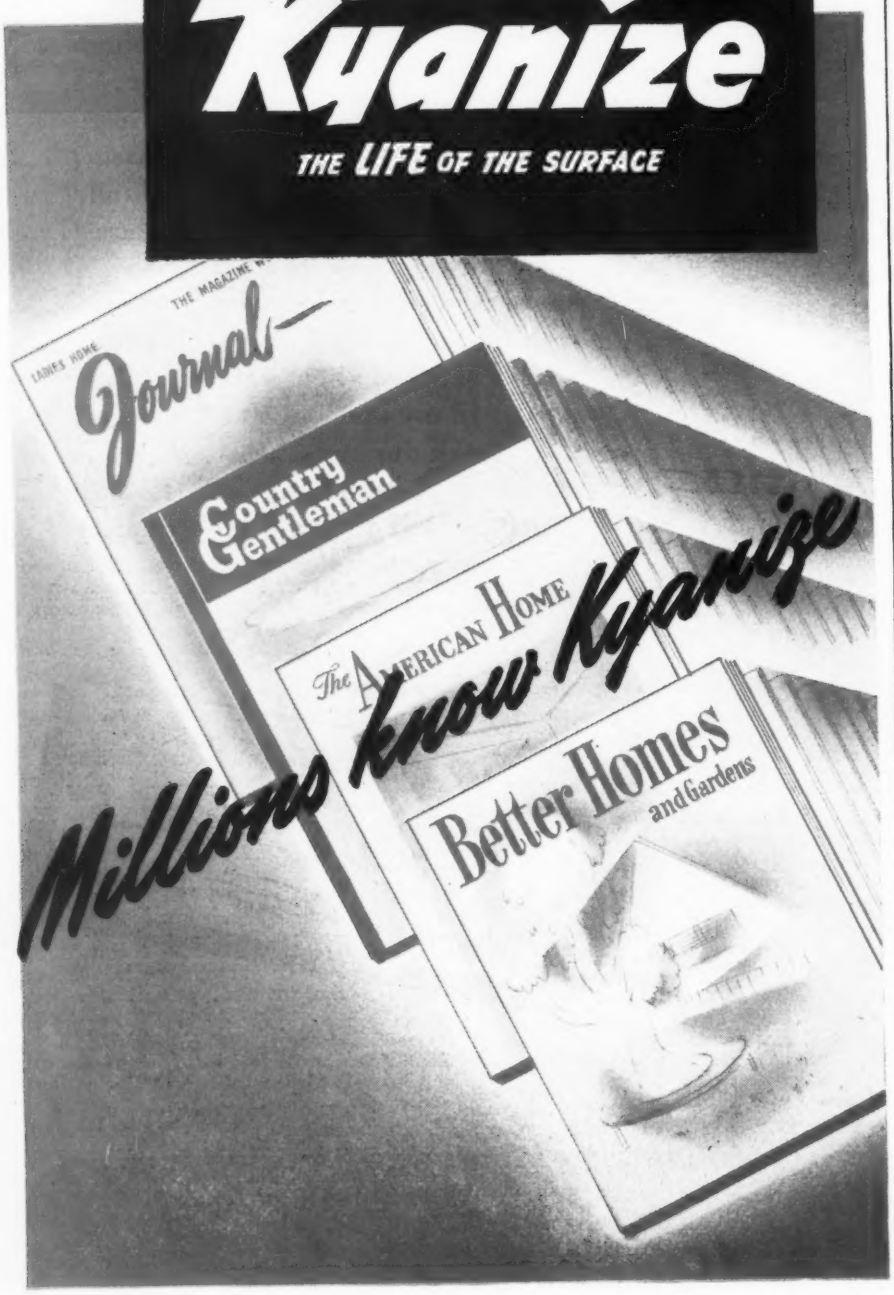
BOSTON VARNISH COMPANY

Boston — Chicago — Los Angeles — Montreal

SELF-SMOOTHING

Kyanize

THE LIFE OF THE SURFACE



BOOKS for LUMBERMEN

WOODSMAN'S MANUAL. By Austin Cary. Deals with land surveying, forest maps, growth of timber, timber estimating and cruising, log and wood measurements—all supplemented by tables giving mathematical formulae, numerous log scales and other tables for measurement of woods products that are not found easily elsewhere. 366 pages, 6½x4¼, by about an inch thick, bound in tough waterproof cloth and weighing only about 10 ounces. **Price, delivered, $3.25.**

PROBLEM IN FARM WOODWORK. By S. A. Blackburn. Illustrations, descriptions and material lists for more than seventy articles useful on the farm and grouped under "Shop," "Poultry," "Seed Corn," "Yard," "House," "Garden," "Stock," "Barn Yard," "Bee Raising," and "Miscellaneous." The articles range from tool handles to silo forms and include a multitude of useful implements. Dimensions of the completed articles as well as finished sizes of the pieces of wood used are given; 129 pages, strongly bound in cloth. **Price, delivered, $1.75.**

STAIR BUILDER'S GUIDE. By Morris Williams. A simplified treatise on stair construction adapted to the needs of the average building mechanic. Contains examples of all types of stairways. Freely illustrated. 250 pages, bound in cloth. **Price, delivered, $4.00.**

MODERN SHAPER PRACTICE. By W. H. Rohr. This book gives access to the accumulated information and experience of hundreds of persons and firms engaged in or identified with the operation of shapers; shaper cutters and shaper equipment in factories manufacturing millwork, furniture, pianos, auto bodies, caskets, cabinets, novelties and miscellaneous woodwork. 16 chapters, 104 illustrations, 191 pages. Durably bound in flexible synthetic leather. **Price, delivered, $4.00.**

FOREST MENSURATION. By Donald Bruce, consulting forester, and **Francis X. Schumacher,** U. S. Forest Service, both formerly on the faculty of the University of California. First are explained the "tools"—measuring instruments and mathematical formulae, then methods of employing them to all problems, encountered in forestry work. **Price, delivered, $4.50.**

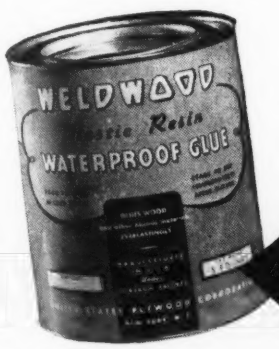
American Lumberman
&
Building Products Merchandiser
139 N. Clark St. Chicago 2, Illinois

In the Shop . . . On the Counter . . .

WELDWOOD GLUE is the Favorite

In the shop, this modern Plastic Resin glue turns out better finished jobs because its bond is stronger than the wood itself . . . it's unaffected by heat or moisture . . . it's quick-mixing, quick-setting, quick-working.

On the counter, Weldwood Glue is a fast, profitable seller. Why? It's quick and easy to use. Its convenience, speed and dependability makes, and holds, friends fast . . . brings them back for more and larger purchases.



CHECK THESE SIX ADVANTAGES OF WELDWOOD GLUE

- Tremendous strength
- Shearproof, permanent joints
- To mix, just add cold water
- Spread with brush, roller or paddle
- Stain-free
- Bacteria- and rot-proof

Tame the grain with . . .

This Remarkable Sealer Helps Give Fir Plywood a "Luxury" Finish!

Everywhere men work with wood, Firzite is opening new fields. Used on fir plywood . . . or any other soft wood . . . Firzite makes it possible to get a soft, luxurious stained finish, or a satin-smooth painted surface on these economical woods.

Whenever you sell fir plywood (either for exterior or interior use) be sure to mention Firzite. You'll not only make an extra sale . . . but you'll also help your customer overcome a troublesome problem.

Firzite is distributed exclusively by United States Plywood . . . in pint, quart, gallon and five-gallon cans, and fifty-five-gallon drums.

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55 WEST 44th STREET, NEW YORK 18, N. Y.

Distributing units in Baltimore, Boston, Brooklyn, Chicago, Cincinnati, Cleveland, Detroit, High Point, Los Angeles, Newark, New York, Oakland, Philadelphia, Pittsburgh, Rochester, San Francisco, Seattle. Also U. S.-Mengel Plywoods, Inc., distributing units in Atlanta, Dallas, Jacksonville, Louisville, New Orleans, Houston, St. Louis. *In Canada:* United States Plywood of Canada, Ltd., Toronto. *Send inquiries to nearest point.*

Table of labor production

Material	Kind of surface	Labor production per hour		
		Primer, or 1st coat	2d coat	3d coat
Exterior paint	Plain siding and trim	108 sq. ft.	120 sq. ft.	135 sq. ft.
" "	Exterior trim	72 " "	90 " "	99 " "
" "	Porch floors and steps	270 " "	306 " "	324 " "
" "	Shingle siding (not including trim)	81 " "	108 " "	
" "	Shingle roofs	200 " "	300 " "	
" "	Screens, wood only (average type)	5 screens	7 screens	10 screens
" "	Storm sash (two lights)	4 sash	5 sash	5 sash
" "	Blinds or shutters (average type)	2 blinds	2½ blinds	3 blinds
" "	Picket fences (average type)	153 sq. ft.	171 sq. ft.	198 sq. ft.
" "	Plain fences (average type)	135 " "	200 " "	225 " "
Acid wash	Galvanized downspouts and gutters	360 " "	360 " "	
Exterior paint	" " " "	250 " "		
Stain	Brick	130 " "	180 " "	200 " "
"	Shingle siding (not including trim)	150 " "	225 " "	
	Shingle roofs	270 " "	360 " "	
Waterproof cement paint	Smooth face brick	180 " "	270 " "	
" " "	Smooth cement walls	180 " "	288 " "	
Exterior paint	Sheet metal (flat)	240 " "	270 " "	
" "	Corrugated metal[1]			
	Steel sash	90 " "	110 " "	135 " "
Interior oil paint	Doors and windows	150 " "	125 " "	125 " "
Flat finish	Smooth plaster	225 " "	170 " "	180 " "
" "	Sand-finish plaster	135 " "	144 " "	135 " "
Gloss or semigloss	Smooth plaster	225 " "	180 " "	153 " "
" " "	Sand-finish plaster	135 " "	126 " "	135 " "
Glazing and mottling	Smooth plaster	90 " "		
" " "	Sand-finish plaster	63 " "		
Water size	Plaster	468 " "		
Oil size	"	225 " "		
Calcimine	Plaster (sized)	243 " "		
Casein paint	Over-painted surfaces	200 " "		
" "	Smooth plaster	200 " "	220 " "	
" "	Sand-finish plaster	160 " "		
" "	Cement or concrete block	144 " "		
Stainfill	Floors	270 " "		
Shellac	"	405 " "		
Varnish	"	315 " "	315 " "	
Wax and polish	Floors (over shellac)	207 " "		
Floor sealer	Floors (maple and pine)	500 " "	600 " "	
" "	Floors (oak)	500 " "	600 " "	
Enamel	Doors and windows	187 " "	124 " "	135 " "
"	Picture molding, chair rail (up to 6" wide)	328 lin. ft.	191 lin. ft.	169 lin. ft.
Interior oil paint	" " " " " " "	330 " "	219 " "	187 " "
" " "	Floors	371 sq. ft.	337 sq. ft.	
Sanding etc., for enamel finish	Average work on all surfaces	300 " "	130 " "	144 sq. ft.

[1] Same as for sheet metal, but add 9 percent to flat area.

(Continued from Page 176)

of some waxlike body which retards evaporation of the volatile solvents, which are the real active constituents.

Care of Brushes

Brushes for applying oil paints must be well cleaned after using, though for keeping overnight it is generally sufficient to wrap them in several thicknesses of paper. Some painters keep their brushes overnight by putting them in water. If, however, the brush is not to be used for several days, the paint should be washed out of it. Turpentine is one of the most satisfactory materials for washing a brush, but it is expensive, and a brush can generally be washed as well with kerosene, which is much cheaper. Many paint companies make special brush cleaners which are designed to clean quickly and protect the brush.

After washing off the paint with kerosene the brush should be rinsed with gasoline or benzine, then thoroughly shaken and well washed with soap and warm water. As soon as this washing is complete the brush should be shaken thoroughly, so as to throw as much water out of it as possible, and hung up with the bristles down to dry. When dried the brush should be thoroughly protected from dust.

If much painting is being done, it is less trouble to keep the brushes in turpentine or kerosene. For this purpose hooks should be fastened on the inside of a pail with a close-fitting cover, the brushes being suspended either by holes in the handles or by loops of string, so that they hang in the kerosene or turpentine in the bottom of the pail. The bristles should be submerged in the liquid but should not touch the bottom of the pail. If kerosene is used for cleansing, it should be removed by shaking the brush and rinsing it in turpentine before using again with paint.

Brushes used with whitewash or calcimine should simply be washed and not put in the same liquids in which the brushes for oil paints are kept. If a brush has been used for shellac varnish, it should be kept in alcohol or in the varnish itself. In general a varnish brush may be kept in the varnish in which it is used.

Steel Wool Uses and Grades

Grade 000	Finishing fine furniture and similar work.
Grade 00	Same, and other jobs not requiring quite as fine a grade of wool.
Grade 0	Polishing and scouring aluminum, brass, tile, linoleum, glassware and kitchenware.
Grade 1	Smoothing and polishing woodwork in homes or industrial plants; also scouring utensils.
Grade 2	Same, but slightly rougher action.
Grade 3	For jobs where a sharp, biting action is needed, such as removal of paint, varnish, rust, etc.
Grades 4, 5 & 6	Even coarser grades, where work is such that very severe abrasive action is needed.

Estimating Coverage—Estimating coverage is not easy. However, in applying paint products over smooth plaster, wood or metal, the figure of 500 square feet per gallon is said to be a safe, reasonable estimate. The coverage of varnishes and stains will run as high as 800 square feet, and coverage over masonry, stucco, brick and rough plaster may run as low as 250 square feet per gallon.

A helpful rule, in ordering paint for trimming, is that one gallon of paint will cover the paintable areas of approximately 20 openings. It is safest to let the customer give you the final decision on the quantity he buys. See Table of Covering Capacities.

Some Causes of Paint Failures:

(To guard against in selling and servicing paint jobs)

Excessive moisture
Cold weather painting
Painting after a frost
Painting over green lumber
Plaster not dry enough
No ventilation in attic
Plugged up down spouts or gutters
Contact of vines or trees with house wall
One coat painting
Improperly mixed paints
Too much oil in paint
Too thick or too thin application
Surface improperly prepared
Sudden extreme drop in temperature
Acids, fumes and smoke in atmosphere
Erosion and dirt
Metal stains
Wood contact with moist soil conditions

(Continued on Page 186)

BONDEX CEMENT PAINT

For use on unpainted stucco, concrete, cinder block and masonry surfaces. Bonds with the surface, waterproofs, preserves and beautifies. Easily applied with brush or spray.

COLORS

118 Dutch White
100 Old Spanish White
121 Oyster Shell
110 Antique Ivory
107 Carthage Cream
117 Adobe
119 Tropical Coral
103 Spanish Buff
109 Monastery Grey
114 Ivy Green
112 Grotto Blue
108 Brick Red
also White

BONDEX PRIMER

For waterproofing previously painted or non-porous brick and masonry surfaces in preparation for the finish coat of Bondex. Available in white only.

NEW! for "after-rain" leaks BONDEX HYDRAULIC CEMENT

Plugs wall cracks, mortar joints and floorline cracks where water flows in when it rains. Saves cost of digging around foundations.

VENOSTONE PRIMER

The safest surface sealer for cement floors and masonry surfaces. Venostone neutralizes alkalinity, arrests the moisture, seals the pores of the surface and forms a perfect base for any type oil paint, varnish or enamel.

COLORS

3 — Stone Gray
5 — Green
6 — Tile Red
also White

Reardon's PATCHING PLASTER

For repairing cracks and breaks in plastered surfaces. It sets slowly; does not shrink or crack and dries to a hard, dense finish.

Reardon's PATCHING CEMENT

The ideal medium for filling and repairing cracks and broken places in stucco, concrete, stone walls, cement floors, sidewalks and steps.

CHEX WALL SIZE

A casein size and sealer for plaster, wallboard and interior stucco surfaces. Recommended for use on new plaster and other damp surfaces. It kills "hot spots" and hides stains.

MODEX The Modern Casein Paint

For ideal interior finish for most any type wall and ceiling surface. Modex is extremely economical to use, gives two coat hide with one application, is self-sizing and has high light reflectivity.

COLORS

1. Ivory
2. Cream
3. Buff
4. Maple Tan
5. Blue
7. Nile Green
8. Seacrest Green
9. Pink
10. Gray
11. Apricot

also White

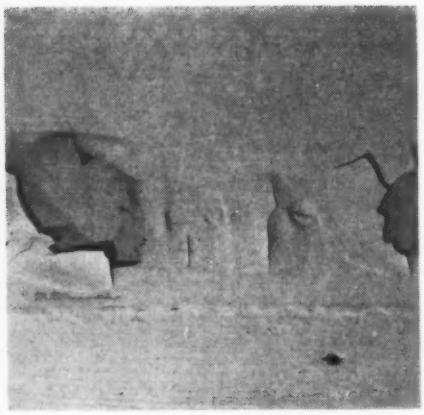
Reardon's Water Putty CRACK FILLER

An inexpensive, shrink-proof crack filler for minor repair work on wood and metal surfaces. Sets extremely hard.

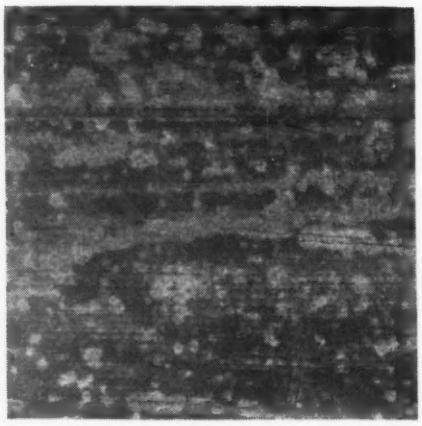
RESURFO Spachtling Compound

For repairing and resurfacing wood, plaster, wallboard, brick and metal surfaces. Resurfo is indispensable, particularly in renovating old interiors.

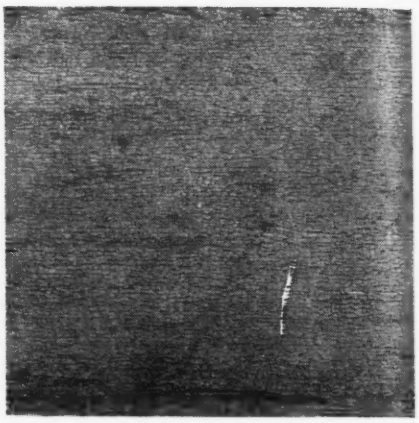
For Color Cards, Write The Reardon Co., St. Louis 6, Chicago 9, New York 6, Los Angeles 21, Montreal 1



BLISTERING is a type of failure which is due to mechanical defects in building construction rather than to paint. It is caused by water seeping through the painted surface, pushing the paint film off in unsightly blisters which easily break and peel away. The remedy involves removal of all paint and a cure of construction defects. Occasionally it is due to damp surfaces being coated with an improperly formulated paint.



SPOTTING is probably most frequently caused by unequal oil absorption which results in color changes. It is often due to trying to make a small amount of paint cover a large surface, or use of a poor paint. The prevention is using a proper painting technique and adequate sealing of the surface. The use of poor materials and shoddy workmanship is not economical when a god paint job is wanted.



CHECKING is a minor type of failure that is not always fatal, and may be due to poor workmanship or the use of improperly formulated materials. Normal wear from weather may cause cracks to disappear. If not, the surface should be wire brushed and repainted. To prevent checking sufficient drying time should be allowed between coats and proper formulation of the undercoat and finish coat.

(Continued from Page 180)

Vapor barrier omitted
Cold water lines in an outer wall
Inefficient caulking
Wet basements
Excessive use of hot water without ventilation

Tips and Helps for the Retail Paint Salesman:

When you sell paints you are selling the resulting satisfaction to your customer. The things that will bring this satisfaction are appearance, length of life, gloss retention, color retention, durability, resistance to dirt, efficiency of application.

Suggest a three-inch brush to women amateurs, a four-inch to men, a 2½-inch oval brush for trimming.

There is three times as much potential for interior paint as exterior!

On the average paint job the applied cost is 250 percent of the paint cost.

Always sell the needed accessories with a paint order—make up a list of everything needed on each job and check it off with the buyer in making the sale.

The Paint department should be the most colorful, best lighted and cleanest spot in the store.

A well displayed and easy-to-get-at color guide will save time and advance sales.

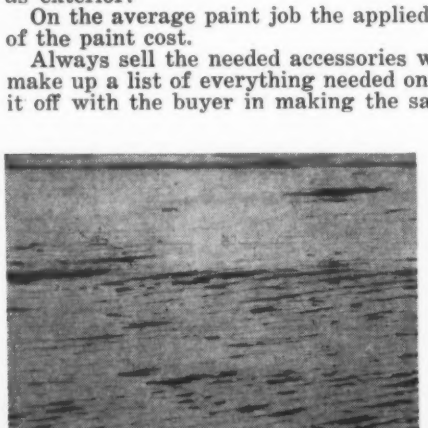
Secure a copy of **Paint Power** from the National Paint, Varnish and Lacquer association, 1500 Rhode Island avenue, Washington 5, D. C. Study it! Master it! Put it to work in selling!

(If your manufacturer supplier has a course in Paint Salesmanship repeat this process.)

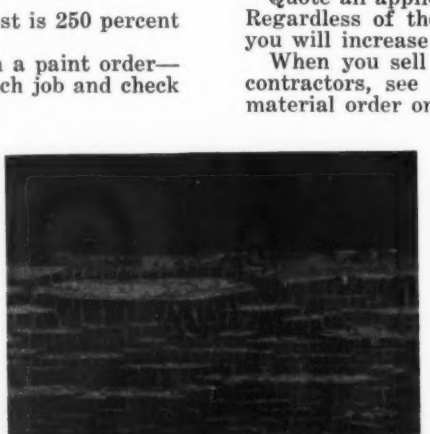
Every family in your trading area is a paint prospect at least once a year. Every house should have exterior paint every three or four years. Keep a list of the properties which will become live prospects **this spring** and **this fall!**

Quote all applied jobs on a monthly payment basis first. Regardless of the number who will ultimately pay cash, you will increase your sales by one-third with this policy.

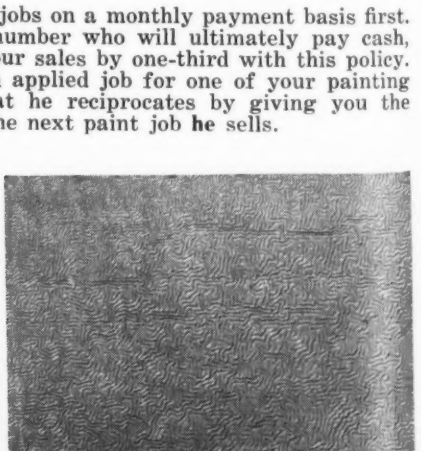
When you sell an applied job for one of your painting contractors, see that he reciprocates by giving you the material order on the next paint job **he** sells.



CRACKING occurs when the paint is improperly made. Water is allowed to enter and seep down to the wood surface and the pressure causes edges to curl, flake and scale off. The general cause is paint which dries too hard to the conditions of the job. To safeguard against this, undercoats and finishing coats of equal elasticity, possessing equal ability to expand and contract should be used. If caught soon enough it can be cured by wire brushing.



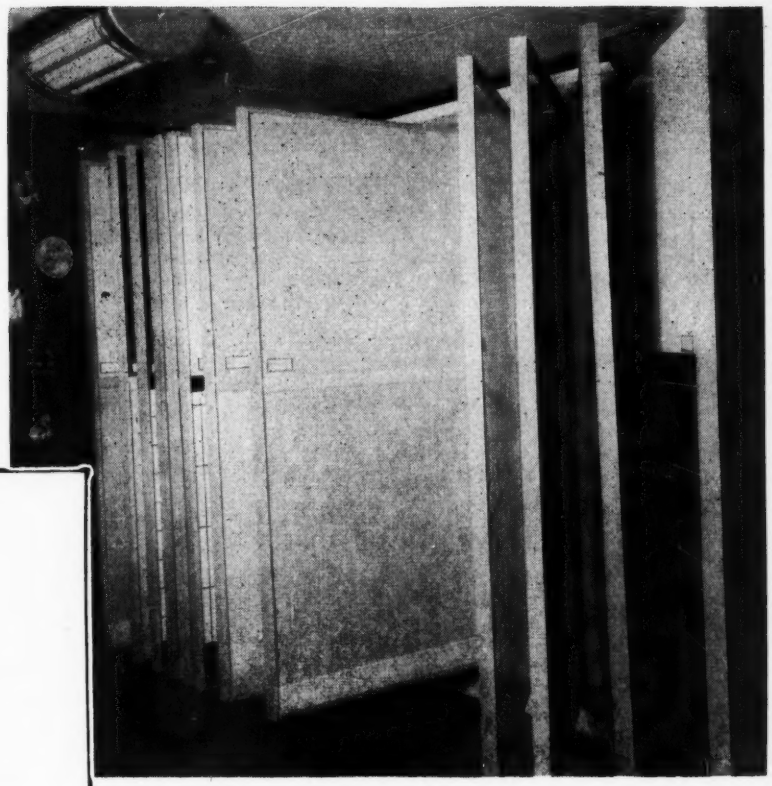
ALLIGATORING is an advanced stage of checking, the cracks having reached down through the film to the bare wood. It shows up just before a film ceases entirely to give adequate protection. Generally due to an improperly built up paint film, there is only one cure—removing the old film and painting over, which means it is one of the most expensive and difficult of the paint troubles.



WRINKLING comes from too heavy a coat of paint, improper brushing or the wrong combination of oil and pigment in the finish coat. If the leather-like texture is not too pronounced, sanding off and repainting may do the trick. The trouble can always be traced to poor painting standards both in workmanship and choice of materials.

Section 6

Board Products



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BUILDING BOARDS

Tremendous strides have been made in recent decades in the development and improvement of building boards. These items now constitute an important percentage of the lumber dealer's total sales. Total production of these materials in 1946, according to CPA estimates, was approximately five billion square feet.

The term "building boards" as used above, and in the compilation of production figures, includes both regular sized sheets and the companion products fabricated from the same type of materials. In the trade, however, "building boards" are the general purpose boards made in large, square-edged sheets. Thus while insulating board, for example, is listed here under the general heading of "building boards," insulating board products include not only building board but also sheathing, lath, decorative plank and tileboards and roof insulation.

The building boards generally stocked by lumber dealers include insulating board, gypsum board, asbestos cement board and hardboard. The products are similar in that they cover large areas quickly and are easy to handle. Each has individual qualities, however, which recommends it for certain uses.

INSULATING BOARD

Insulating board sometimes known as rigid insulation or structural insulation, is manufactured from vegetable fibers. Those commonly used include wood, bagasse (sugar cane stalks), and corn stalks. It is low in density, soft to the touch, light in weight but high in tensile strength.

The first step in making insulating board is to reduce the raw material to a pulp. The fibers then are cooked and washed. The cooking dissolves the soluble matter and the washing removes it. The clean fibers next are chemically treated with waterproofing materials. The loose fibers then are formed over large rolls or in molds into large, coherent sheets. The final steps are removing any remaining water from the sheets by means of driers and cutting and trimming the boards to the finished sizes.

Within and between the fibers of the completed board are millions of entrapped air voids. They serve to effectively retard the passage of heat. This quality gives the board its name. Insulating board of production line dryness has a thermal conductivity of 0.33. The natural interlacing and interweaving of the fibers and their subsequent shrinkage during the drying process knits them firmly together and forms a grainless board of high tensile strength and stiffness.

INSULATING BUILDING BOARD

Insulating building board is a general purpose product, made with square or beveled edges. It is produced with the natural finish on both sides and also with a natural finish on one side and a colored surface (usually white or a light pastel) on the other. The top surface is sometimes textured insulating board combines efficient insulating properties with sufficient strength to permit its use as a structural material.

Size: Insulating building board is made four feet wide and in lengths of 6, 7, 8, 9, 10 and 12 feet (not all manufacturers make all lengths). The common thickness is one-half inch, but it also is made in ¾-inch and one-inch thicknesses.

Colors: The natural board may be gray, tan or brown, depending upon the raw materials used. White or ivory is the factory-finish most commonly applied. Green, buff, and other colors are sometimes available.

Packaging: Six pieces usually make up a bundle. The approximate weight per 1,000 square feet is 760 pounds.

Uses: Insulating building board is widely used where a rigid, light-weight, easy-to-handle utility board is desired. Applied to walls and ceilings it provides a beautiful interior finish. It is equally as effective used over existing finishes or in new construction. The standard colors form harmonious backgrounds for almost any decorative plan. If desired, the board may be stained, painted, stenciled or carved.

Building board is recommended for constructing partitions of all kinds. It makes an efficient sheathing in instances where standard thickness (25/32-inch) is not required. When placed between rough and finished flooring it provides insulation and helps reduce the passage of sound.

Insulating board, in addition to its use as an interior finish, can be utilized in many ways in new construction. Some of these uses are:

To enclose the contractor's temporary shack.
As insulating strips under radiant heating pipes in concrete floor slabs.
As insulating strips between foundation walls and concrete floor slabs.
To reduce sound transmission in floors (used under subfloor or between finish floor and subfloor).
To reduce sound transmission in walls (applied to single walls or between double partition walls).
To obtain added insulation (used in back of radiators

recessed into outside walls; also against inside of sheathing and in back of cold air returns in outside walls).

To build ceiling and partition walls for basement storages.

Here are some of the places insulating board can be applied to save heat in both old and new homes: behind radiators located against outside walls; on back of doors to attic or as a trap door over attic stairway; on back of storm doors and garage doors; on upper sash of windows hidden by window shade; in archway partitions to close off rooms not used in winter; over fireplace openings (as a screen) when fireplace is not in use; over radiators in unused rooms.

The composition of insulating board makes it an excellent material for bulletin boards of all kinds. Its resiliency adapts it for use as a pad under rugs and as a floor cushion for work areas in basements and other rooms having hard surfaced floors.

The following is a partial list of locations where insulating board may be used as interior finish with good results:

Auditorium	Hospitals
Automobile showrooms	Libraries
Barber shops	Lodge rooms
Billiard parlors	Music stores
Bowling alleys	Nurseries
Cafes	Offices
Cocktail lounges	Reception rooms
Churches	Restaurants
Exhibition halls	Schools
Farm buildings	Summer cottages
Garages	Theaters
Game rooms	Studios
Groceries	Window displays

Insulating board also has many commercial uses, such as lining refrigerator cars, making toys, etc.

Storing and handling: Insulating board should always be stored under cover. Reasonable care should be taken to prevent damaging the board at the corners. A common method of storing is to lay the bundles flat and form plies. One large retailer saves space by storing the boards flat in original bundles in bins set at a 45 degree angle to the loading alleys. This makes a relatively narrow alley adequate for placing the bundles in the bins and removing them. If the bins face the alley directly, the alley must be at least 14 feet wide to handle packages of 12-foot board. Another large company stands the large board on end in original packages. This simplifies handling. Two men can raise a package of 12-foot board or sheathing from a truck and stand it on end for storing or lower it back to a truck when it is removed. One package is leaned against the other and the height of the pile always is the same as the length of the board. Mechanical lifts would be necessary to stack the board 12 feet high if it were piled flat. Some dealers have found that if the board is stored on the long edges there is danger of damage when it is pushed or pulled into the bin.

Display: One of the largest retailers of insulating building board recommends that the board be displayed in large sheets, rather than in small sample sections. The size of the sheets often suggests new uses to the customer.

Market: The wide range of uses for insulating board keeps it in demand regardless of season. It can be recommended for most purposes where the objective is to cover large areas quickly. For new construction, it provides a means of finishing attics, basements, garages and other areas at low cost and with a minimum of labor. For repair and remodeling, the board can be used to finish off unused areas, partition large rooms into smaller ones, enclose porches and cover over old and unsightly walls and ceilings. Where insulation is the primary objective, insulating board can be sold for covering attic floors or rafters and for many miscellaneous purposes. Commercial building and remodeling offer excellent opportunities for insulating board sales, since entirely new interiors can be put in inexpensively and with only minor interruptions to business. The insulating value of the product, combined with its function as a building board, makes insulating board attractive to rural customers. Any farm building can be insulated by lining the interior walls and ceilings with insulating board.

Precautions: Where insulating board is applied to wall surfaces, or used on the outside of studs without any additional exterior finish, it should be protected against damage by abrasion, puncture or poultry pecking. That can be done by covering it to the necessary height with lumber, hardboard, plywood, asbestos cement board or other suitable materials, nailed through to the underlying studs. Materials ordinarily used for exterior siding will protect insulating board applied to the outside of studs.

Application: Proper application of insulating board is important and the specific instructions of the manufacturer should be followed. The following details of application, however, will serve as a general guide.

Interior Finish: Insulating building board used as an interior finish may be applied by nailing to framing or furring or by cementing to continuous, smooth surfaces. When attached to a nailing base, the framing should correspond with the size or type of product. The one-half-inch thick board should be installed on not more

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DEFINITIONS:

ACOUSTICS—The word "acoustics" is developed from a Greek word meaning "hear" and the dictionary supplies the definition—"The science of sound." In considering the term from a structural point of view it could be defined—"The science of sound control within structural walls." Sound is a form of energy which travels in spherical waves in all directions from its source at the relatively slow speed of 1100 feet per second. When produced in a confined space these waves reverberate and rebound from one wall or obstruction to another until they are either absorbed or permitted to escape.

Most of the materials in common use for interior linings and decorations of buildings are of so hard or dense a nature that their tendency to reflect sound and cause these echoing reverberations makes them almost useless in some types of public buildings and a source of discomfort in others.

Engineering science has, however, developed materials which absorb these sound waves to a remarkable extent and "acoustical engineering" is the direction of their use for that purpose.

Auditoriums where walls and ceilings tossed the words of the speaker about in utter confusion have been made to function properly by the scientific use of these materials, and their use has contributed greatly to the success of the sound picture. In hospitals unavoidable noises that rasp the nerves of patients are subjugated and controlled, and offices in noisy districts are made quieter and more agreeable.

BREAK JOINTS—To arrange joints in the applying of material, such as flooring, siding, sheathing and numerous other items, so that they will not come directly over or under or opposite the joints in adjoining pieces.

DEADENING FELT—A sound-proofing material made from various kinds of fiber and hair woven together in sheet form. Asbestos is frequently used and seems to have the preference of many architects and builders. Deadening felt is an important item of building material which is often neglected and omitted for the saving of a few dollars. It happens to be one of the important installations that is always hidden, and builders of houses that are built to sell have an inclination to omit even important features if the omission can be made without detection. There are deadening felts that will absorb from 60 to 70 percent of the sound waves and have important insulation and fire resistance value as well. It should be installed in the floors, walls and ceilings of bath rooms and of other rooms where sound should be either confined or excluded. Buildings with steel frames should use large quantities of it on account of the tendency of steel to act as a sound conductor. There are a great number of deadening felts on the market that vary in thickness from one quarter inch to an inch or even more and vary just as greatly in both cost and efficiency. It does not follow, however, that the thickest and heaviest felts are the most efficient. The materials used have much to do with both cost and efficiency and there are several great organizations that have made such exhaustive studies of sound and sound control that their recommendations are reliable and their products to be depended upon.

DECORATIVE INSULATION—Panels of insulating board are manufactured in a variety of sizes for use as inside linings for either homes or business locations. Most of the rigid insulation manufacturers include a line of "beveled tile" and "plank" in colors and tints that are pleasing to the eye and serve very well indeed for purposes of interior decoration in addition to their value as insulation. It is applied over framework, in which the spacing of the nailing points should not exceed sixteen inches on centers, and headers are often necessary according to the pattern selected. All producers of this type of insulation include complete installation instructions in their advertising and while a general similarity exists, there is enough difference in sizes and installation methods to justify the omission of any

than 16-inch centers. For farm service building interiors, framing for the ¾-inch or one-inch board may be set on a maximum of 24-inch centers. Headers should be inserted between framing members at the unsupported ends of insulating boards to serve as nailing bases.

For masonry construction, furring strips should be attached to the masonry on centers as described above and the insulating board nailed to the furring strips. Masonry above grade should be waterproofed on the inside before applying furring strips. Masonry walls below grade should be waterproofed on the outside before back filling.

Insulating building board should not be forced into place. The 4-foot wide boards should be installed so as to leave a space of ⅛-inch between adjoining boards and at ends. Most insulating boards are cut scant to allow for this space.

Nails and nailing: Where nails are to be covered (under battens, etc.), use 1½-inch galvanized shingle nails, galvanized roofing nails or box nails for half-inch thick insulating board. For one-inch thick board use 2-inch galvanized roofing nails or box nails. Where nails are exposed, use 1¼- or 1½-inch finishing nails (as specified by manufacturer) for half-inch board and 1¾- or 2-inch galvanized finishing nails for 1-inch thick board. Finishing nails should be driven at an angle, with the heads set **flush with** the surface of the board. For farm work, and other locations where a fine finished appearance is not essential, large headed nails should be used even where the nailing is exposed. The use of galvanized or cadmium coated nails will guard against staining due to rust.

Joint Treatments: Where joints are left exposed in finished rooms, the edges of the board should be beveled or covered with wood battens or other mouldings.

Conditioning: It is recommended that all interior finish insulating boards be placed in the room where they are to be used 24 hours before application. This will permit adjustment of the board to room conditions.

INSULATING TILE BOARDS AND PLANKS

In addition to insulating building board, which is a utility as well as an interior finish product, there are two other insulating board interior finish materials—tileboards and planks. As the name indicates, the tileboards are comparatively small squares and rectangles. The planks are narrow widths of insulating board which can be obtained in a number of lengths.

Both tileboards and planks are made with tongue-and-groove or other joint treatment which conceal the nailheads. They are produced in a number of colors and surface textures. The variety of shapes and colors make these products adaptable to many different designs.

Tileboards are particularly suited for ceilings, although they are sometimes used to obtain unusual effects on sidewalls. Similarly, the planks are most commonly used for walls, but they can be utilized effectively alone or in combination with other insulating board interior finishes to build ceilings.

Tileboards and plank are similar in composition to other insulating board products and have like insulating values.

TILEBOARDS

Sizes: Insulating tileboards are commonly made one-half inch thick and in panels 12x12, 12x24, 16x16, and 16x32 inches. Some manufacturers produce these sizes in ¾-inch and 1-inch thicknesses. Larger tiles also are produced by some companies.

Colors: White, ivory, pastel colors and blends.

Packaging: Varies with manufacturers. Approximate weight per 1000 square feet: 775 pounds.

Storage and handling: Similar to insulating building board.

Application: The general instructions for handling insulating building board apply to tileboard. In new construction, properly spaced wood framing or furring is necessary. In remodeling, the units may be applied by means of adhesives or nailing, or by a combination of the two, directly over old plaster or other wall coverings.

The design to be followed should be carefully worked out before the first unit is put in place. Where large units are used the use of adhesives for intermediate fastening avoids the necessity of face nailing. It is usually preferable to begin application at the center of the area and continue outward, so that the pattern will work out symmetrically.

Because of the different joint treatments used by various makers, the manufacturer's instructions should be studied before work is begun or before the dealer advises a customer in the application of tileboard.

Uses: Insulating tileboard is both a decorative and insulating interior finish for walls and ceilings. The wide field of use for these tileboards includes basement game rooms, attic bedrooms, libraries, dining rooms and living rooms in private houses and the interiors of churches, schools, restaurants, stores, theaters, offices, recreation halls and other commercial structures.

INSULATING PLANK

Sizes: 8, 10, 12 and 16 inches wide; 6, 8, 10 and 12 feet long. Usual thickness: one-half inch. Thicknesses of ¾-inch and 1-inch are sometimes made by some manufacturers.

Colors: White, ivory, various pastel colors and blends.

Packaging: Usually 12 pieces to a bundle.

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attempt at instruction here. As noted above, the natural colors and surface texture of these boards are pleasing, and it is customary to leave them unfinished when used for room interiors. They can, however, be covered with either oil or water paint, or they can be sized and covered with wall paper. Mouldings and moulded ornaments of the same materials are available and any number of pleasing designs can be worked out.

GYPLAP—A fireproof, solid sheet of gypsum, encased in a tough fibrous covering, the outer surface of which is moisture proof. The ends are coated to resist moisture. It is ½ inch thick, 24 inches wide, 6 feet 8 inches and 8 feet long. It will fit supports 24 inches on centers if applied vertically and either 16 inch or 24 inch centers if applied horizontally. It does not burn or transmit heat readily and when applied to the outside of a frame building it provides a substantial fireproof covering.

PANEL STRIP—When wall board, insulation board and other materials which are used in large sheets for wall covering and interior decoration, strips of wood are frequently used to cover the cracks in the same way that battens are used on outside work. The effect is similar to that of panel work and the crack covers are called "Panel strips."

QUARTER-BOARD—Quarter-board is a wood pulp product one quarter inch in thickness, somewhat harder and more rigid than the one-half inch insulation board but very much less in those properties than the board called "Hard-board" or Pressedwood." It is soft enough to admit a thumb tack and dense enough to hold it fairly well, making it adaptable for use as bulletin boards and similar purposes. It does not, however, hold a tack nearly as well as any soft wood and it is not tough enough for continuous use as a drafting board. It is usually, but not necessarily, dark brown in color, and has a glazed finish on one side. It is manufactured in sheets 48 inches in width by six, eight, nine, ten and twelve feet in length. While sometimes used for insulation purposes, it is considerably less efficient in the prevention of heat leakage than the one-half inch rigid insulation board usually used for that purpose. Sometimes called "Studio board."

SHEET ROCK—A gypsum product moulded, while in a plastic condition, into sheets between tough protective paper. Gypsum is so highly fire resistent that it is fireproof up to very high temperatures and can be depended upon as an adequate fire stop in practically all kinds of building construction. Various adaptations of the sheet, in the way of different sizes, different edges, character of covering etc. permits this product to be used as a wall board for interior decoration, as an insulation board and in a number of other ways, in all of which it serves efficiently and economically. While the name "sheetrock" is really the copyrighted trademark name applied to this product by the U. S. Gypsum company, the name has become a common one by reason of the fact that it is descriptive, that it was the first product of the kind in the field and that the highly educational advertising of this company has popularized it to the extent of making other names unfamiliar.

SHEET-ROCK WALL BOARD—A sheet of solid gypsum that comes in three thicknesses—¼ inch, ⅜ inch, and ½ inch. It comes in two widths—32 inches and 48 inches; and in lengths 4, 5, 6, 7, 8, 9, 10, 11 and 12 feet. The ⅜ inch thickness and the 48 inch width are common stock in all lumber and building material yards with the eight and twelve foot lengths the most popular for the long dimension. While the other lengths are not at all uncommon in the larger establishments, it can, of course, always be cut to take care of the shorter sizes. The gypsum sheet is moulded between two sheets of tough protective

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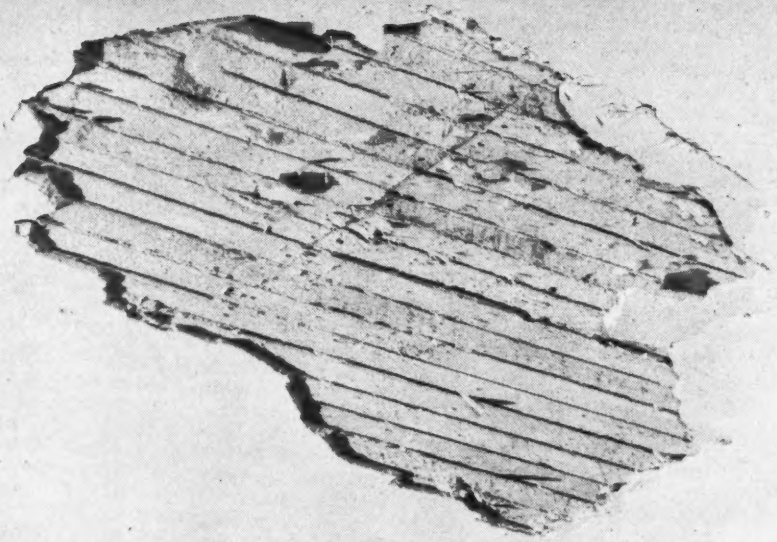

End of a Problem for an Architect!

LOOK UP! Speak Up! When cracking plaster is causing trouble, always say —"You need an Upson Ceiling, ma'am."

Make it a habit to watch for cracked plaster! There is profitable business and the answer to a long-standing problem in Upson Ceilings.

Because millions of homes—many right in your own community—have cracked ceilings badly in need of repair right now.

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Because Upson Ceilings end plaster troubles forever—provide enduring beauty—and can be installed quickly and easily right over old plaster anywhere.

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Although Upson Panels, like all good building materials, are not yet in full supply, start today to make a ceiling survey in your area!

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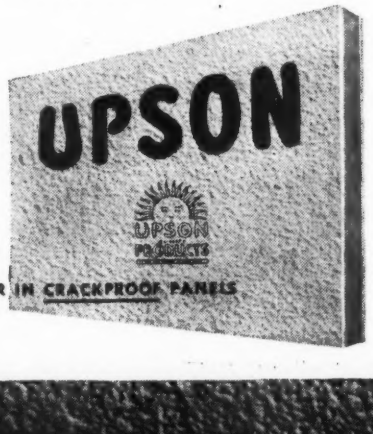

THE UPSON COMPANY
Lockport, N. Y.

Storage and handling: Similar to other insulating board products.

Application: Insulating board planks may be applied either vertically or horizontally with equal success. Applied vertically, in random widths, they simulate Early American painted paneling, at the same time helping to create the illusion of additional height in a room. Applied horizontally, they form a wall which makes a suitable background for a modern interior and also helps to make a small room look wider and longer. They can be applied by nailing to a sound wood lining or to furring strips placed on suitable centers, or they may be cemented to smooth, even walls in good condition. Application by cementing should be confined to experienced workmen. The planks should fit snugly together but never forced into place. Nailing strips should be on centers as specified by the manufacturer. It is recommended that planks be conditioned by opening the package and allowing them to stand for 24 hours before erection for adjustment to atmospheric conditions.

Uses: As a wall or ceiling interior finish, as suggested under uses for tileboards.

INSULATING BOARD SHEATHING

Insulating board sheathing is designed to be used as a wall sheathing in frame construction in combination with various styles of exterior finish, such as wood siding, wood shingles, stucco and brick veneer. It is made of wood, cane or other vegetable fiber in the manner of other insulating board products. Various supplementary waterproofing treatments, such as asphalt coating or integral treatment with asphalt, are used with some of the sheathings for additional weather protection.

This product performs four services. It builds, it braces, it insulates and it stops wind. Produced in large, easy to handle units, it can be applied quickly and with minimum waste.

Insulating board sheathing is made in two widths—four feet and two feet. The four-foot wide boards are produced in two thicknesses, 25/32-inch and one-half inch, and in lengths ranging from eight to 12 feet. The two-foot widths are made only in a thickness of 25/32-inch and a length of eight feet.

Four-foot sheathing boards are square-edged and are applied vertically. The two-foot boards are side matched (long edges tongued and grooved or similarly treated) and are put on horizontally.

Insulating board sheathing is distinctive in that it combines insulation value with high bracing strength. The resistance to distortion of wall sections sheathed with insulating board has been tested in a number of laboratories. As would be expected, the bracing strength increases with the width and thickness of the board. The 2x8-foot sheathing, horizontally applied, was found to have considerably more strength and rigidity than 1"x8" wood shiplap, applied horizontally without bracing. The 4x8-foot insulating board in the half-inch thickness, applied vertically, had more than two and a half times the strength of wood shiplap, applied as previously described. Insulating sheathing 4x8-feet and 25/32-inch thick exceeded in strength and rigidity wood shiplap applied horizontally with let-in bracing.

Building paper is not required over insulating board sheathing, except under stucco. This and the fact that the board can be handled and nailed quickly cut application costs.

Sizes: 4-feet wide by 8, 8½, 9, 9½, 10 and 12 feet long; ½-inch and 25/32-inch thick. 2-feet wide by 8 feet long, 25/32-inch thick.

Storage and handling: (See insulating building board.)

Application: The procedure for applying insulating board sheathing is in general the same as that for wood sheathing, there being a few minor respects in which the methods differ. Studs should be erected as in ordinary frame construction on 12 or 16 inch centers and two by four headers inserted between framing members at the ends of all insulating boards to serve as a nailing base. Use 2-inch galvanized nails with ⅜-inch or ½-inch heads, or 8d common nails for 25/32-inch insulating board. For ½-inch board use 1½-inch galvanized roofing nails with ⅜-inch heads. Apply the large insulating board units lengthwise (vertically) and directly to all framing members, with ample bearing for nailing along all edges. Nail to intermediate framing members first, spacing nails 6 inches apart; and then along the edges, spacing nails 3 inches apart and ⅜-inch in from the edge. Drive nails until the heads are flush with the surface of the insulating board.

Never force insulating boards in place. Leave a ⅛-inch space between adjoining boards and at ends of boards. Most insulating boards are cut scant in width and length to allow for this space. Where 2-foot by 8-foot sheathing is used, it should be applied horizontally in accordance with manufacturers' specifications. Bring sheathing into close contact with frame around windows. Certain boards should be moistened lightly in dry weather, the day before application, as directed by the manufacturer. Flash windows, doors and other cased openings with strips of metal or prepared roofing.

Wood siding may be applied directly over the insulating board, nailing through to the studs. Siding boards

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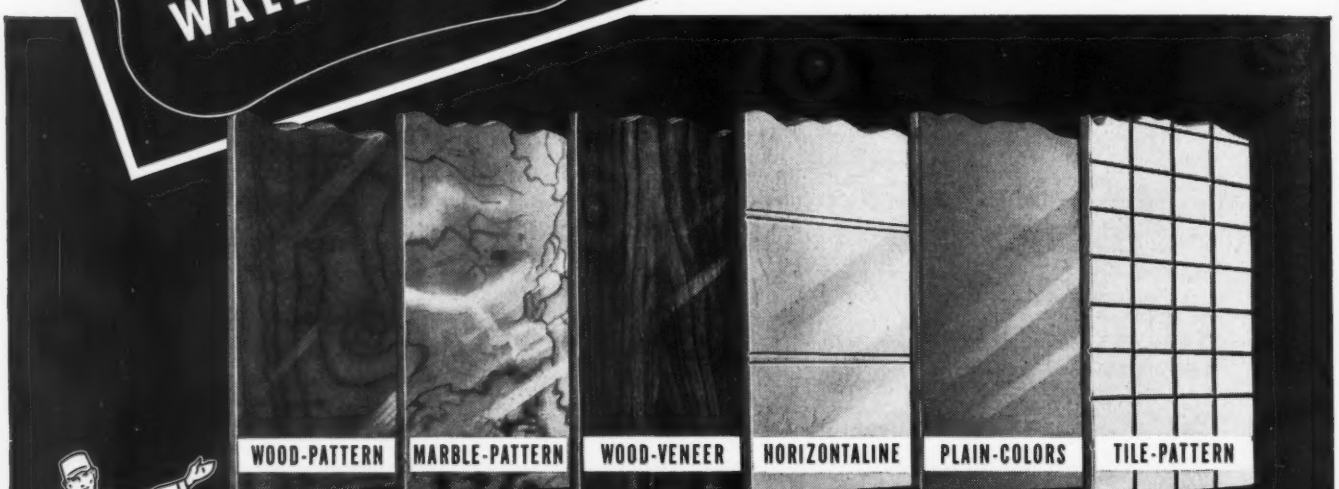
paper with edges reinforced and protected. It is fire proof and does not transmit heat readily. It is used for walls and ceilings in all types of buildings, as fire proofing over and around heating plants, as a lining for garages and attics and for remodeling work wherever time and litter of plastering is a factor. It can be painted, calcimined, wall-papered, enameled or covered with lining cloth or paper, either with or without panels. A system of reinforcing and concealing the joints is recommended by the manufacturers which provides a uniform surface over the whole wall area and it can then be treated with any desired type of decoration. Sheet-rock is also prepared with a facing of genuine wood veneer for use as a panel material giving an appearance identical with high grade wood panels. It has all the advantages of regular sheet-rock with the addition of a wood surface that can be stained and varnished or treated in any way that wood is treated. All of the usual finish woods are quickly available and a number of the rarer woods such as satinwood and rosewood are easily obtained on special order. Another type of sheet rock wall board is produced with a printed reproduction of wood grain and figure that can be stained and varnished with highly decorative effect. Knotty pine, walnut and Douglas fir effects are most common.

WAINSCOT—The facing of the wall of a room for only a part of the distance from floor to ceiling with some material other than that which appears above. The wainscot is frequently panel work, but it may be ceiling or any other material. It is separated from that part of the wall immediately above by a moulding called a "Wainscot cap" which is rabbeted on the back side to receive the wainscot from below. The use of wainscot was quite popular for dining rooms and kitchens during the latter part of the 19th century and a standardized wainscot cap was carried in stock by most lumber yards and by all wholesale millwork warehouses. But the popularity of this style of finish waned and by 1910 to 1915 had just about disappeared from common use. It is interesting, however, to note that while wainscot finish practically disappeared from common use, it held its own fairly well in more elaborate residences where it often appeared in halls, dens and playrooms. It is sometimes the medium of display for rare wood and highly finished panelwork.

WALLBOARD—Wallboard is a vegetable fiber product that consists of a plane surface board that is marketed in thicknesses from $\frac{3}{16}$ inch to $\frac{5}{16}$ inch, is 48 inches wide and comes in lengths from five to sixteen feet. It was first placed on the market along about the turn of the century and since that time has supplied a continual demand as an interior wall covering for summer homes, for quick partition building, for bin separators, display signs and fixtures, exhibition booths, backgrounds for window displays and for many other purposes where a thin, light board of broad surface is desired. It is of light weight, can be cut or sawn, is fairly stiff but rather brittle when the limit of its strength is reached. It is not water proof, but some brands are moisture resistant on account of a varnish sizing. Practically all brands are prepared to take paint economically and lend themselves kindly to decorative painting or stencilling. On account of its thinness it cannot be represented as having insulation value comparative with the thicker and specially prepared insulation boards but it certainly possesses some value along that line. It is carried in stock in practically all lumber yards. It is packed, for shipping purposes, in bundles, some manufacturers using eight, some ten and some twelve pieces to the bundle. The number of pieces often depends wholly upon the size of the piece.

Marlite PLASTIC-FINISHED WALL PANELS

Product Popularity builds your profits



That's why dealers everywhere are demanding Marsh products for complete wall and ceiling installations of lasting beauty and utility. All Marsh products are designed by the same experienced engineers and are built to the same high standards of quality and beauty.

Marlite plastic-finished wall and ceiling panels add colorful new beauty to *all* types of interiors. Marsh "panel-tested" mouldings are skillfully engineered to fit and match any wall board installation. Marsh bathroom accessories complete the Marsh Wall products line. And Marsh Mastic and Marlite Polish are just right for easy installation and care.

MARLITE ADVANTAGES FOR YOU

***EASY PROFITS**—Generous margins on quality products built in the nation's largest and most modern factory specializing in prefinished wall panels and accessories.

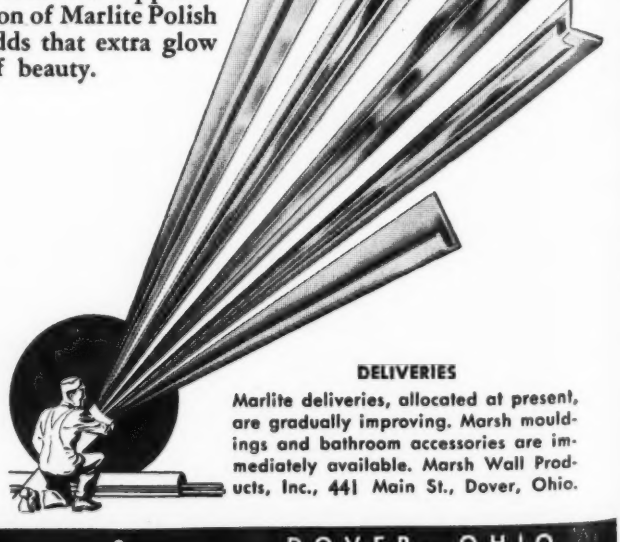
***EASY TO HANDLE**—Standard packages and sizes scientifically designed for convenient storage and identification.

***EASY TO SELL**—Nationally advertised to all your principal markets. Attractive literature and displays for every merchandising need. Many distinctive colors and patterns to suit any decorative plan. Easily adapted to kitchens, bathrooms, utility rooms, recreation rooms, stores, offices, hotel and theatre lobbies—wherever colorful interiors are wanted.

***EASY TO INSTALL**—Wall size panels are easy to cut and fit with ordinary carpenter tools, for either new construction or remodeling.

ADVANTAGES FOR YOUR CUSTOMERS

Marlite provides colorful walls and ceilings of enduring beauty to enhance any decorative scheme. Marlite never needs refinishing—is as easy to clean as a china dish. And an occasional application of Marlite Polish adds that extra glow of beauty.



DELIVERIES

Marlite deliveries, allocated at present, are gradually improving. Marsh mouldings and bathroom accessories are immediately available. Marsh Wall Products, Inc., 441 Main St., Dover, Ohio.

MARSH WALL PRODUCTS, INC. • DOVER, OHIO

should butt over studs. Where shingles are to be used, nail 1x2 furring strips horizontally over insulating board to studs, spacing to fit the shingles. Nail shingles to furring strips. For brick or stone veneer, properly space anchors and nail through the insulating board into the studs. Lay the brick or stone in the usual manner. Allow not less than ½-inch space between the insulating board and the brick or stone. If stucco is to be used as exterior finish, it is generally considered good practice to apply a layer of asphalt saturated roofing felt over all surfaces to receive stucco. Self-furring and non-furring stucco bases should be applied in accordance with the manufacturers' specifications.

Uses: As a wall sheathing, insulating board sheathing can be used under the wood siding shingles, stucco or brick veneer. It also can be used on pitched roofs. If the roofing is to be wood shingles or slate wood, strips are installed to receive the roofing. Other types of roofing, such as asphalt shingles, roll or metal roofing or tile require the installation of solid wood sheathing over the insulation.

Insulating board sheathing is also recommended as an exterior surfacing for temporary structures. After it is applied to the framing, battens and wood trim are applied over the boards. The asphalt treated surfaces can be painted for additional weather protection with paints recommended by the sheathing manufacturers.

HARDBOARD

Hardboard is made from fibres much like insulating board and then is compressed under great pressure to make a board of greater density and toughness. The result is a board with a hard, glossy surface which is highly resistant to abrasion and wear. It is used for paneling, shelving, counter and table tops, furniture, partitions, magazine racks and unlimited number of other things. Despite its toughness and density it is worked with ordinary tools.

Hardboard is made 4 foot wide and in lengths from 1 foot to 12 foot in ⅛-inch and 3/16-inch thicknesses. It is made ¼-inch and 5/16-inch thick in 12 foot lengths only.

It is made in two grades—standard or untempered, and tempered. Tempered hardboard is standard hardboard impregnated with a special compound and baked. This tempering process increases the density and strength and, at the same time, makes it highly resistant to moisture in all forms. Hardboard tile board is tempered hardboard scored to resemble tile. It is extensively used in bath rooms and kitchens as a wainscoting as it is easily painted or enameled.

Presdwood—is an all wood fiber board manufactured from exploded wood fiber which is then refined, felted and pressed into board form in heated flatbed hydraulic presses. It is grainless and knotless, has great resistance to moisture and is quite dense. Presdwood is used largely for interior installations. It is ideal for new construction or remodeling work. Applied over old walls and ceilings in large panels, it may be left in its natural color or painted as desired. Joints may be treated in numerous ways including metal or decorative wooden mouldings or edge beveling to form a "V" joint. It may be nailed to the existing surface or applied with adhesives.

Tempered Presdwood—is obtained by subjecting Presdwood to a special tempering process which consists of impregnating the board with a tempering liquid and then polmerizing the liquid by baking. This tempering process increases the tensile and transverse strength, resistance to abrasion, and reduces the rate of moisture absorption. Where the installation will submit the board to conditions of high humidity Tempered Presdwood should be used. Tempered Presdwood may be used for exterior applications following Masonite Corporation application specifications. Tempered Presdwood in its natural color is a rich brown. Like Standard Presdwood it may be painted and similar types of joint treatment are recommended.

Presdwood Temprtile—heralds a new era in artistic and pleasing wall effects with distinctive qualities and advantages over the usual tile walls. This new, modern, all-wood Presdwood Temprtile is made of the same materials as Tempered Presdwood and is very practical for both new construction and modernizing present buildings. It is furnished in ⅛-inch thickness; 4x12 foot panels with identations forming 4" x 4" squares impressed in the surfaces. Presdwood Temprtile may be decorated by painting to any desired color or shade with contrasting or matching color in the score marks, either before or after erection. Its combination with metal mouldings for joint treatment gives a very pleasing and modern wall effect in bathrooms and kitchens.

Tempered Presdwood, ¼-inch in thickness, makes an excellent exterior siding for all types of structures. Tempered Presdwood should be finished only with paints suitable for exterior use on wood. Priming the board and following the paint manufacturers specification for succeeding coats, using a three coat finish paint job, is satisfactory for exterior work.

PLASTER BOARDS

Definition: Plaster board is a rigid interior-use board made of gypsum contained between sheets of heavy fibrous paper.

Sizes: Customarily available in ¼", ⅜" and ½" thicknesses. Widths of 48". Lengths from 4' to 12'. Edges square or beveled.

Uses: Primarily used in place of lath and plaster for interior walls and ceilings. Ordinarily applied directly over studs in new construction and on furring strips over old plaster in repair and modernization.

Estimating Coverage: Figure actual surface area to be covered plus some allowance for waste in cutting to work out of 4' sheets.

Application Counsel: In new construction framing of all studs and joists shall be 16" on center, unless for bearing partitions which are 12" on center, and shall follow general good practice.

Framing: Headers of 2" x 4" shall be provided in ceilings and wherever else required to provide proper nailing for all ends of wallboard . . . also between studs for baseboards, wainscot, or other finish and for furring to take wood beams, cornices, etc.

Old Plaster: For covering old plaster, nail 1" x 2" furring strips over the plaster to provide proper nailing for ends and intermediate support for boards, using 8d nails.

Nails: For ¼" and ⅜" board nails shall be 4d, 14 gauge, cement coated, flat headnails 1⅜" long. For ½" board, 5d 13½ gauge, cement coated, flat head nails 1⅝" long. Allow 10 lbs. of nails per 1000 sq. ft. of board.

Inspection: Before applying board see that all edges and ends are perfect and all ends and cut edges are face beveled and that faces of boards are undamaged.

Application: Wallboard shall be applied with back toward studs and nailed directly to studs and joints. Where necessary use headers to provide a solid nailing surface behind the four edges of every panel. Panels with closed edges shall be applied moderately close together—never more than ¼" apart. Sawed edges (with gypsum cove exposed) or mill cut ends shall be spaced ⅛" apart. Any spaces of ⅛" or over between panels must be filled with joint cement and brought flush with the surface before proceding with application of reinforcing strip at joints.

Nailing: Nails shall be not less than ⅜" from edges and ends of panels and shall be spaced 5 to 7" apart on ceilings and 6 to 8" apart on walls.

Ceilings: Ceiling panels shall be erected first, apply panels at right angles to joints. Panels shall be in one piece as far as possible but if joints are necessary they should be staggered except when joints are to be covered with panel strips.

Walls: Wallboard shall be applied as follows:

Vertically: Where possible use full lengths from floor to ceiling. Panels shall be nailed first at edge adjoining panel last applied: next on the first intermediate stud; next on the second intermediate stud and finally, the far edge and the ends. Vertical joints on opposite side of partitions shall not come opposite each other on same stud.

Horizontally: Use full length panels that will keep the number of end joints to a minimum. Where possible, full length panels shall extend above and below openings instead of "piecing."

Finishing of Joints: There are two general methods of finishing joints. One is an application of joint cement

(Continued on Page 197)

GIVE YOUR CUSTOMERS

Double-

OUTSIDE: Double-duty Insulite Sheathing is moving up fast because it does two things for the price of one—

(1st) *Sheathes* (2nd) *Insulates*

That's too good to pass up. Customers like the idea of getting double value for their money. Remember, too, that Insulite Sheathing for outside walls helps sell Insulite Lok-Joint Lath for inside walls! A double sale and increased profits—welcome any day.

By certified test, Insulite Sheathing provides bracing strength superior to wood sheathing horizontally applied.

INSULATES AS IT BUILDS . . . . .

(Continued from Page 193)

to fill and smooth joints and the other application of a reinforcing strip at the joint (usually an open-mesh cloth strip). This strip is cemented tightly against the board and surplus cement scraped off to leave a smooth joint in the same plane as the face of the board. Joints can also be covered with moulding strips to provide a paneled effect.

Decoration: Plaster board can be used without decoration or it can be painted, calcimined, enameled or papered. See Section 6 for data on decorating plaster board.

ASBESTOS CEMENT BOARD

Asbestos cement board is a many purpose building board made of portland cement reinforced with asbestos fibers. It is light gray in color and has a number of individual characteristics which make it particularly suitable for a number of purposes. These include resistance to water, immunity to rust, decay and corrosion, fireproofness and flexibility.

The board is made by combining cement and the asbestos fibers under tremendous hydraulic pressure. The result is a tough board with a smooth, hard finish. Although stonelike in composition and appearance, it can be worked with ordinary hand or power tools.

SIZE

Standard sheets of asbestos cement board are 4 feet long by 8 feet wide. Thicknesses are ⅛-inch, 3/16-inch, ¼-inch and ⅜-inch.

USES

Asbestos board has a wide range of uses. The most common are the wall and roof material for portable buildings, as an interior lining for buildings of all kinds, as exterior siding and for partitions. In addition, it is used as a utility board wherever a hard, durable, wear-resistant surface is desired.

The following are some of the projects for which the board is recommended:

MARKET

As indicated by the list of suggested uses, asbestos board is a highly versatile material. Sales possibilities range from the thousands of squares required by housing prefabricators to a single sheet for making a poultry feeder. Home owners and home builders find it particularly suitable for finishing the interiors of laundry rooms, basements, kitchens and bathrooms, where resistance to water, rotting and rust are desired attributes. The industrial field presents excellent opportunities for volume sales. It is used to side hangars, rebuild arched ceilings, encase cylindrical structures, surface interior walls, ceilings and work tables and build washrooms and lockers.

There are an almost endless variety of uses for the board on farms. Many dealers have found it profitable to construct portable prefabricated farm buildings, such as hog houses and brooder houses, in their own shops during slack periods. Others have found it profitable to work with contractors who specialize in the re-siding of barns and other large structures with asbestos sheets. Its ease of cleaning and resistance to rats and pecking recommend asbestos board for lining the interiors of dairy buildings, poultry shelters, granaries and other service buildings. It also can be utilized on the farm for making self-feeders, ventilating flues, dropping boards, range shelters, tool houses, etc.

Storing and Handling Asbestos Board

Asbestos board, like other materials, must be treated with reasonable care. It should be protected against impact shocks and dropping while being handled and applied. Care should be used in stacking and loading. It is usually recommended that the sheets be carried by two men, each man holding one long side and stretching out as far as he can comfortably reach. Because of their flexibility, the sheets have much more deflection when held at each end than when held at each side. A sheet held at the ends may slip out of a man's hand due to this bending. Do not drop sheets on the pile but put them down easily and then slide them into proper position.

When asbestos board is stored, in warehouse or on the job, it should not be piled on edge or on end. Before starting a pile, it is usually best to build a flat, tight platform of one-inch boards, supported every 24 inches for piles 6 feet high, every 15 inches for piles from 6 to 10 feet high and every 12 inches from piles over 10 feet high. The platform should be at least an inch wider and an inch longer than the asbestos sheets and should

(Continued on Page 201)

In the Home

- Interior wall and ceiling finish for basements, kitchens, bathrooms, laundries and other areas where damp or humid conditions are likely to be found
- Shields under and back of stoves
- Sub-floor under resilient flooring
- Shower stalls
- Flower boxes
- Aprons between foundation piers
- Laundry chutes
- Splash boards
- Closet linings
- Garage linings
- Heating ducts
- Cabinets
- Hot pads
- Surfacing for table tops
- Porch and house skirting
- Half-timber panels
- Storerooms
- Firewall partitions
- Wainscots
- Screens
- Blackboards
- Kennels

On the Farm:

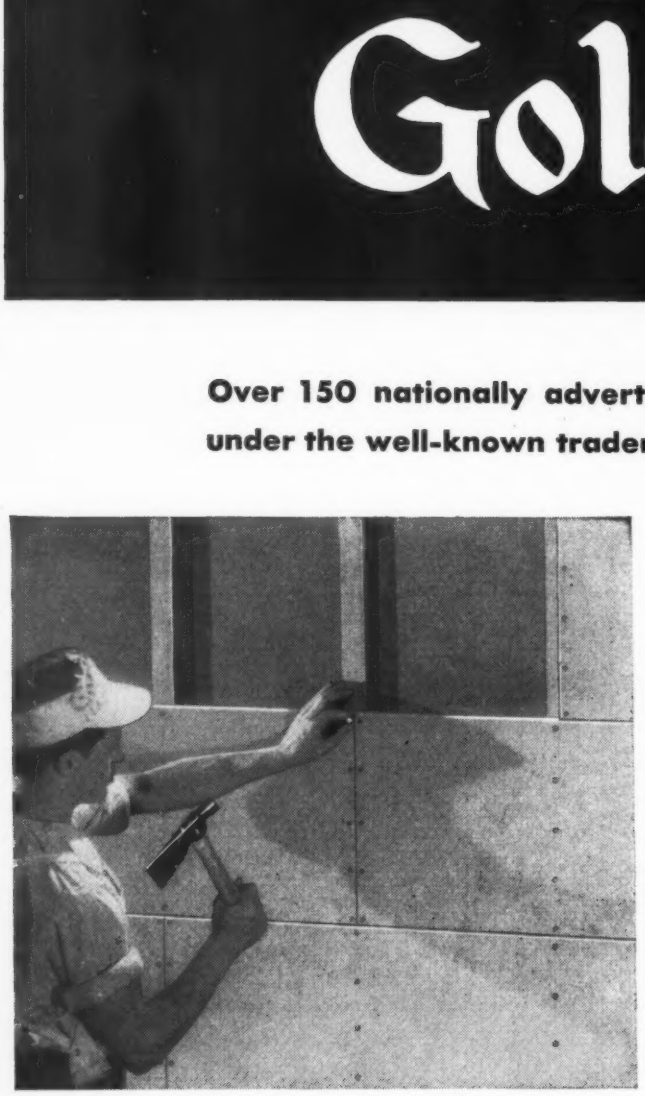
- Siding and roofing portable buildings such as brooder houses and hog houses
- Exterior siding and roofing for all types of farm buildings
- Residing barns and other structures
- Machine sheds
- Hog and poultry feeders
- Granary floors
- Ventilating ducts
- Dropping boards
- Tenant houses
- Lining work clothes closets
- Range shelters
- Interior walls and ceilings for dairy barns, poultry houses, granaries, milk houses, hog houses, machine sheds, storage bins, etc.
- Barn partitions
- Feed bins
- Lining truck floors
- Lantern shields
- Firewall partitions
- Tool sheds
- Shower stalls
- Roadside stands
- Stove shields

Industrial Uses:

- Counter fronts and tops
- Electrical barriers
- Lockers
- Bulkheads
- Motion picture projection booths
- Lavatories
- Outdoor dance floors
- Work bench tops
- Shower stalls
- Storage cabinets
- Foundry pallets
- Display stands
- Conveyor enclosures
- Grandstand floors
- Elevator siding
- Interior walls and ceiling finish for offices, tool rooms, fan rooms, spindle rooms, filling stations, laboratories, stock rooms, etc.
- Billboards
- Fabricated items such as ironing boards, outdoor furniture, fireplace screens, bird houses, flower boxes, home bars, table tops, window shutters, hotbed frames and signs.

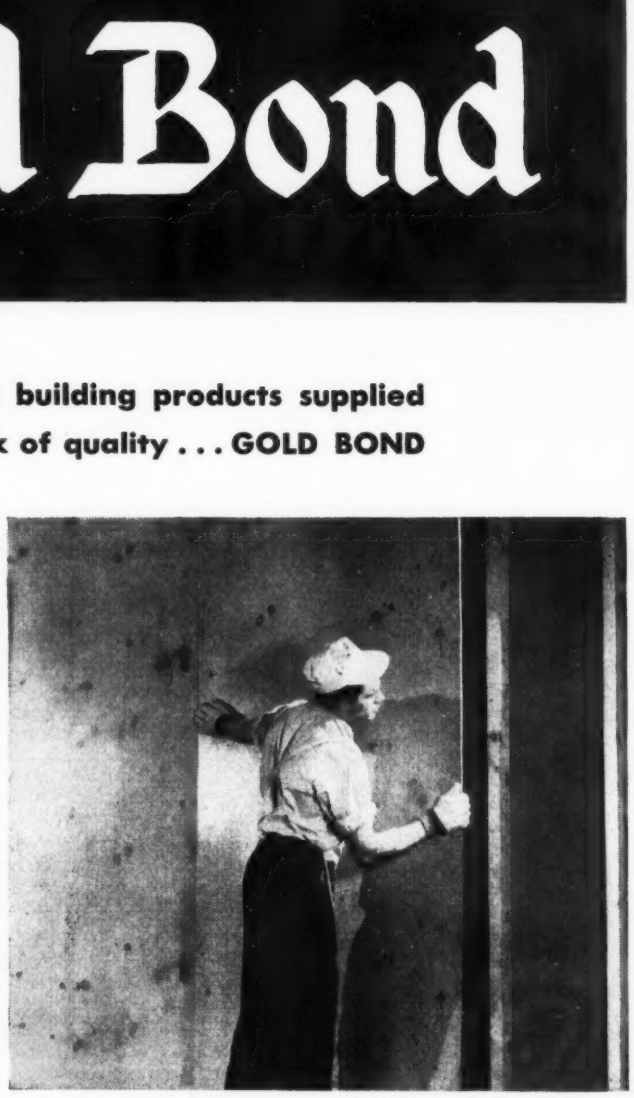
You'll build or remodel better with Gold Bond

Over 150 nationally advertised building products supplied under the well-known trademark of quality . . . GOLD BOND



LATH, PLASTER AND LIME

Standard and Perforated Gypsum Lath; Base Plasters; Finishing Plasters; Best Bros. Keene's Cement; Mason's Lime; and the finest Ohio Finish Lime . . . all dependable Gold Bond Products with uniform high quality and durability guaranteed.



GYPSUM BOARD

Gypsum Wallboard; Gypsum Tile Board; Gypsum Wood Grain Board soon available in Knotty Pine (illustrated), Walnut and Bleached Walnut; new *water-repellent* Gypsum Sheathing which eliminates the need for building paper under most exterior finishes; popular Gold Bond Perforated Tape Joint System.

SEE YOUR GOLD BOND REPRESENTATIVE!

(Continued from Page 197)

be well supported and braced. When the warehouse floor is cement and it is believed that a platform can be dispensed with, make certain that the floor is carefully swept clean and that it has no irregularities in it. Even when cement floors appear smooth, it is usually wise to cover the cement with a couple of thicknesses of building paper.

Keep asbestos cement board under cover or protect it with building paper or a tarpaulin.

Transporting Asbestos Board

When asbestos cement board is transported by trucks, wagons or railroad cars, a platform on which the piled sheets can be built up should be provided as directed in the section on storing. Brace the piles so that the sheets cannot slide. Do not pile lumber, kegs of nails or tools where they can rub against the asbestos board in transit. Unload carefully, taking off only one sheet at a time.

Cutting Asbestos Board

Asbestos board is easy to cut and work. It can be sawed with a 5 or 6 tooth per inch carpenter's cross cut saw. A sharp saw will become dull rapidly at the first and then will do a good job for a long time. The best and quickest way to cut asbestos board is to score it and break it off. Just lay the sheet of asbestos board on a smooth bench or floor, use a straight board for a straight edge, laying it along the line to be cut. Then take any strong, sharp scoring tool—a heavy ice pick, old sharpened file or a sharpened nail—and scratch a deep score on both sides of the sheet along the line of the cut. Then clamp the sheet betwen two 2x4s or similar, laid along the score, and break off the sheet.

Nailing Asbestos Board

It is important to use the right nails in applying asbestos board. The board is practically everlasting and can outlast the nails that fasten it. For exterior service, select a non-corroding metal or rustproof galvanized nail. Use a non-corroding nail for inside work where dampness, frequent wetting or condensation is likely to occur. On exterior applications open to the weather, exposed nail heads might leak water. Therefore, either use a galvanized lead-headed nail or cover the exposed nail head with a generous amount of gray asbestos putty or a high grade caulking compound.

Nails should be long enough to penetrate well into good sound wood. Barbed or ring shanked nails ordinarily hold better than others. Nails with medium sized heads are satisfactory when asbestos board is applied to a sidewall or vertical surface. Large headed nails should be used when the board is applied to a ceiling. For interior work where inconspicuous nails are necessary, use small countersunk head nails, in a rust-proof finish. For ordinary interior work, for nailing against wood sheathing or studding, use a hot galvanized asbestos shingle nail. In general, select nails having sharp needle points, no larger than 11 or 12 gauge, made of hard material or hardened. Choose nails you would use for hard wood like oak or birch.

Quarter-inch or thinner asbestos board can be nailed easily without preparation. The ⅜-inch sheets should be drilled, or have the holes started for the nails. A starting tool can be made by grinding down a nail-set so it is straight and not tapered. Start nails straight—not cocked at an angle. Drive nail heads snug against the board, but do not sink them into the surface of the board, unless you are using a countersunk head nail. Thick nails (11 or 12 gauge) should be kept ¾ or one inch away from the edge of the sheet. Hardened nails not over 14 gauge thick may be driven a little closer. Where nails must be driven close to the edge, pre-drill holes for them.

Applying Asbestos Board

Three methods of application have been used for exterior work with complete satisfaction. The simplest is to butt the vertical joints and lap the horizontal ones, with the vertical joints covered with asbestos board battens. The second method is to butt the vertical joints, without battens but with waterproofing strips under the joints, and to butt the horizontal joints with metal flashings. The third way is to use one of the connector strips that are on the market.

Asbestos sheets should not be joined too closely. Leaving a space about the width of a three-penny nail is advisable to allow for expansion and contraction.

DECORATIVE ASBESTOS BOARDS

Special asbestos cement boards, produced in colors, have been developed for use as an interior finish for bathrooms and kitchens. These are known as decorative asbestos boards. One kind consists of a base sheet of asbestos board on which an enamel finish is baked, thus providing a smooth, mirror-like finish. Another, and inexpensive, type is made of asbestos board which has been integrally colored in the manufacturing process.

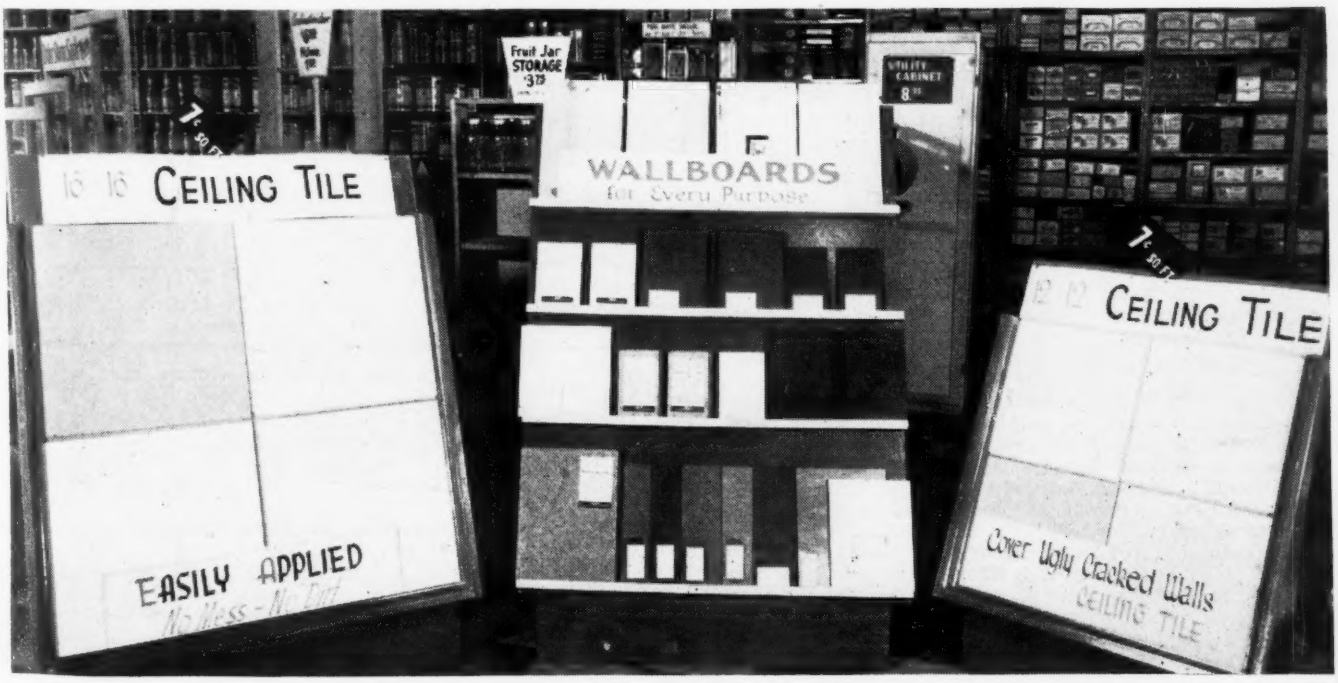
Both types of decorative boards are available in either plain designs or scored in tile patterns. They can withstand heat, steam and severe moisture conditions without incurring damage.

The decorative boards come in large sheets and can be applied directly over old walls and ceilings.

FIBRE WALL BOARD

In hardly any other building material is there so great a difference in quality as there is in fibre wall board. This is because of the raw materials utilized in its manufacture.

Some wall boards are made from any kind of old paper



and newspaper which have been ground up again and "felted" into wall board. These boards absorb moisture readily and are especially subject to expansion and contraction. Because of the cheap fibre used these wall boards sell considerably below that of any other type of wall board. Other wall boards are made from by-product wood fibres that are waste from other products and also from low grades of ground wood. These are also low-priced wall boards.

However, **good fibre wall boards that do not absorb moisture readily,** that do not warp when properly applied, and that do not contract and expand, are made when good wood fibres are combined scientifically under formula.

Laminated Asbestos and Insulating Board

A very rigid board is being manufactured with either two, three or four sheets of insulating board cemented to and bound between exterior sheets of asbestos board. This material is used importantly in pre-fabricated houses and similar structures. The thinner boards for interior partitions and the thicker for exterior walls.

TILE PATTERN FACTORY FINISHED BOARDS

(See Kitchen and Bathroom, Sec. 15.)

For bathroom, kitchen, hospitals and institution walls and ceilings and other places where highly polished and easily cleaned walls are needed a variety of boards are manufactured.

Certain types of asbestos boards are supplied scored in squares of various dimensions, with natural color and finishes or with colors applied in the mix and finishes in colored plastic materials that give the appearance and "feel" of Ceramic Tile.

Hardboard is manufactured and scored for the same purpose and finishes.

Steel also is similarly prepared with a highly polished porcelain finish.

Many of the manufacturers provide the same material in plain unscored panels for functional uses.

Finishes include wood patterns, marble, wood veneer, horizontal lines, plain and tile patterns.

Many of these tile patterned products can be sawed and fitted with ordinary carpenter tools.

The manufacturers usually supply moulding and fittings to be installed with the board.

Mouldings come in three materials, self material, wood plastic and metal.

Complete installation instructions are usually packaged with the product.

ACOUSTICAL MATERIALS

Insulating Board (Acoustical Finish)—for combined decoration, acoustical and insulating treatment.

The versatility of decorative insulating board is shown by its widespread use as interior linings for buildings where both quietness and beauty are vitally important, such as:

Amusement Halls	Homes
Apartments	Hotels
Auditoriums	Libraries
Churches	Offices
Clubs and Lodges	Public Buildings
Cottages and Cabins	Railway and Bus Stations
Funeral Chapels	Restaurants
Garages	Schools
Golf Club Houses	Stores
Gymnasiums	Studios
	Theaters

In the home it is admirably adaptable to use in libraries, dens, recreation rooms, basement playrooms—in fact, for any room that requires the sterling qualities of this multi-purpose material.

The efficiency of decorative insulating board as an acoustical material is shown by the following chart:

Frequency cycles per second	128	256	512	1024	2048	4096
Pitch	C2	C3	C4	C5	C6	C7
Coefficient of absorption						
½ in. thick	0.12	0.19	0.30	0.40	0.40	0.51
1 in. thick	0.15	0.19	0.37	0.37	0.41	0.56

SALES ITEMS BOARD PRODUCTS

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (V) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

	4x4	4x6	4x8	4x10	4x12
( ) Asphalt Coated Sheathing Insulating Board	( )	( )	( )	( )	( )
( ) Cane Fiber Insulating Board	( )	( )	( )	( )	( )
( ) Horizontal Scored Tile Board	( )	( )	( )	( )	( )
( ) Asbestos Base	( )	( )	( )	( )	( )
( ) Metal Base	( )	( )	( )	( )	( )
( ) Wood Fiber Base	( )	( )	( )	( )	( )
( ) Gypsum Board	( )	( )	( )	( )	( )
( ) Laminated Fiber and Asbestos Board	( )	( )	( )	( )	( )
( ) Newspaper Pulp Board	( )	( )	( )	( )	( )
( ) Panel-Scored Tile Board	( )	( )	( )	( )	( )
( ) Asbestos Base	( )	( )	( )	( )	( )
( ) Metal Base	( )	( )	( )	( )	( )
( ) Wood Fiber Base	( )	( )	( )	( )	( )
( ) Pressed Wood	( )	( )	( )	( )	( )
( ) Pressed Wood Temper Tile	( )	( )	( )	( )	( )
( ) Resin Impregnated Insulating Board	( )	( )	( )	( )	( )
( ) Tempered Prestwood	( )	( )	( )	( )	( )
( ) Tile-Scored Tile Board	( )	( )	( )	( )	( )
( ) Asbestos Base	( )	( )	( )	( )	( )
( ) Metal Base	( )	( )	( )	( )	( )
( ) Wood Fiber Base	( )	( )	( )	( )	( )
( ) Upson Board	( )	( )	( )	( )	( )
( ) Wood Fiber Insulating Board	( )	( )	( )	( )	( )

Plywood—See Section I

Decorative and Structural Glass—See Section IV

Ceramic Tile

( ) Acoustical Ceiling Tile
( ) Acoustical Plastics
( ) Acoustical Tile (Fibre)
( ) Acoustical Tile (Metal and Mineral Wool)
( ) Cane Fiber Ceiling Tile
( ) Fiber Moulding and Trim
( ) Metal Mouldings
( ) Panel Strips
( ) Plastic Mouldings
( ) Self-Material Mouldings and Trim
( ) Tile-Board Cement and Adhesives
( ) Wood Fiber Ceiling Tiles
( ) Wood Mouldings

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Items Asked For But Not Normally Stocked

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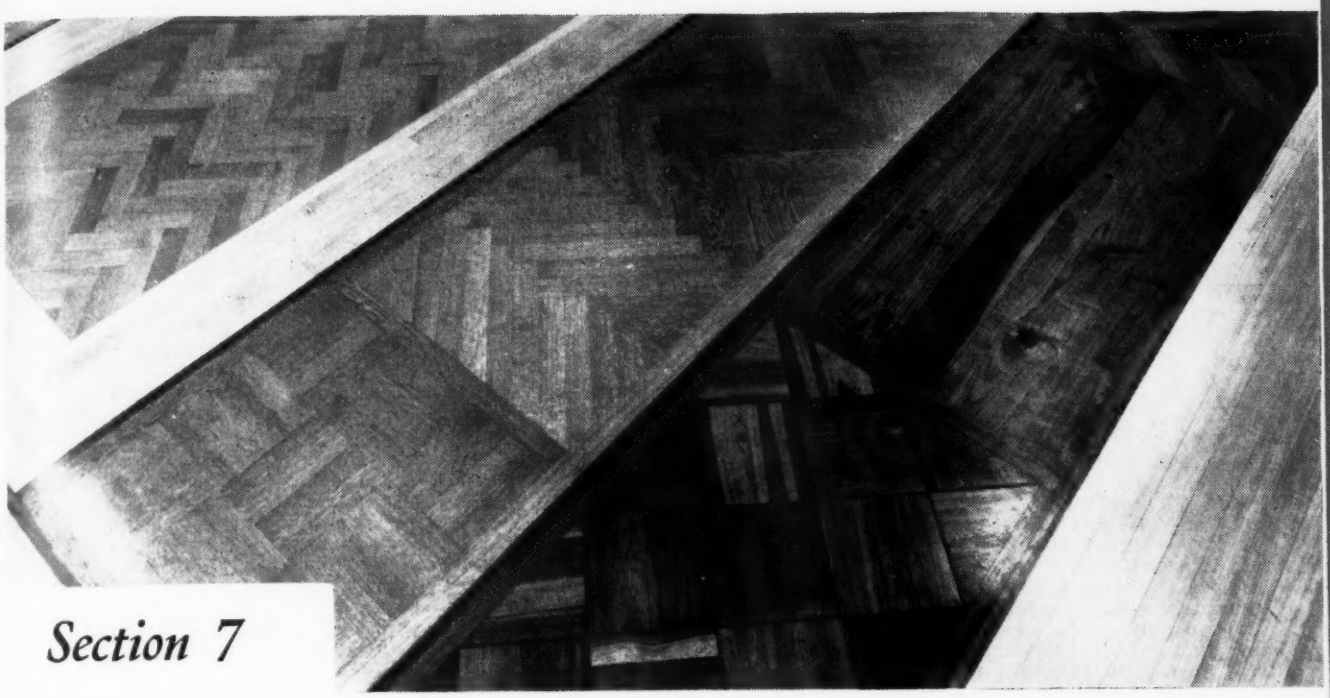

Section 7

Floors, Floor Coverings and Treatments

The retail lumber dealer's flooring department is, or can be, one of the most important operations of his business. Second only to the walls and furniture, is the quality and appearance of floors in the mind of home occupants.

CONTENTS OF THIS SECTION

Accessories
Application
Asphalt Tile Flooring
Finishing
Grading
Hardwood Flooring
Hardwood Species
Linoleum
Pattern Flooring
Plank Flooring
Pre-Finished Hardwood Flooring
Sales Items
Strip Flooring

For Related Sections See Master Index

HARDWOOD FLOORING

More than 100 species of American hardwood are used commercially, each possessing qualities which make it adaptable to specific purposes. The term "hardwood" actually is a misnomer, for poplar, cottonwood and several other species included in that classification are relatively soft textured. These are known in the trade as "light hardwoods," while the hard species are designated "heavy hardwoods."

Experience and modern scientific tests have demonstrated conclusively that heavy hardwoods are best suited for flooring. They are widely used not only in homes, but in schools, gymnasiums, churches, theaters, bowling alleys, office buildings, public buildings, factories and various other types of structures.

SPECIES OF FLOORING HARDWOODS

Hardwoods most commonly used for flooring are oak, maple, beech, birch and pecan. Oak, the most plentiful, is by far the most extensively used. Authorities estimate that it constitutes about 80 percent of all residential flooring in the United States.

Oak

Twenty varieties of oak are processed to flooring. Except for grouping nine of them as white oak and 11 as red oak, no attempt is made to classify them in commercial practice. In quality and utility there is little difference between the two groups, and the grading rules make no distinction. Red oak is more uniform in color and perhaps a little easier to finish. While they may be mixed indiscriminately in order from the mill, flooring of all white oak or all red oak may be obtained at a slightly higher cost for selection.

To the untrained eye the difference between white and red oak lumber is not readily apparent. The experienced lumber man will note, however, that although both groups are light in color, white oak has a brownish tinge. Red oak is characterized by a pink cast which usually turns reddish brown after application of finish. Under a lens magnifying 2 to 15 times the pores of the summer-wood in white oak appear angular and so numerous it is difficult to count them. In red oak the pores are rounded and may be counted easily. Botanical differences make distinctions clearer in the growing tree.

The beauty of oak is due to two important characteris-

tics of its cellular construction. First, it is one of the few heavy hardwoods that are ring-porous. It is thus described because the springwood of each year's growth has larger and more prominent pores than the summerwood. This produces the attractive figure conspicuous in plain-sawed oak. Secondly, it is marked by strips of cells extending radially in the tree, sometimes as high as 4 inches. Known as wood rays, these cells appear as large flaky figures when the wood is quarter-sawed. Singular in its possession of these prominent wood rays, oak is the only popular flooring hardwood that is quarter-sawed.

Maple

Next in order of popularity among the flooring hardwoods is hard maple. Although there actually are only two species of this classification—sugar maples and black maple—the wood is known in different localities by various names, including sugar tree and rock maple. Exceptionally hard and strong, it has great resistance to abrasion. While lacking the striking beauty of oak, it takes an excellent finish and is harder. For this reason it is used rather extensively where extremely heavy wear is encountered.

Maple is designated as a diffuse-porous wood, since it has no prominent springwood pores. Its pores are very small and evenly distributed. As a result, the wood is close-grained. Having no conspicuous wood rays, it is not produced in quarter-sawed flooring.

The heartwood is light reddish brown, the sapwood white with a slight brownish tinge. Yet the contrast in color between the heartwood and sapwood is not so pronounced as in oak. Sapwood is not considered a defect in the grading of maple. Varying natural colors of the wood are permitted even in the higher grades, although special grades provide for clear white stock and clear brown stock.

Beech

Only one species of beech is produced in this country. In texture, strength, hardness, abrasive resistance and color it closely resembles birch. Although it has prominent wood rays, they are not sufficiently attractive in figure to warrant its production in quarter-sawed stock. Beech is available in special grades selected for color from all red-faced stock.

Birch

Of the dozen or more species of birch grown in the United States, two are utilized for flooring. They are yellow birch and sweet birch, the former being by far the most abundant and widely used. Like maple and beech, birch is a diffuse-porous wood of fine, uniform texture. Hard, heavy and strong, it possesses considerably abrasive resistance. The two species vary only slightly, both having heartwood of reddish brown and sapwood of much lighter color. Certain color variations occur frequently, but these are not considered in grading. Special grades, however, are manufactured from all red-faced stock.

Pecan

Pecan is extremely durable. It belongs to the hickory family, the hardest of all hardwoods. Pecan is close grained and has fine or invisible wood rays. Its heartwood is darker than that of most woods ordinarily used for flooring.

Other Species

Chiefly because of their scarcity and consequent high cost, the other species sometimes used for flooring—walnut, cherry, ash, hickory and East Indian teak—are relatively unimportant. So little is produced that most manufacturers have made no efforts to classify or grade these species. Some flooring producers, however, do specialize in their production. Extremely hard and durable, most of these species have grain patterns which result in strikingly beautiful floors. Usually they are processed into parquetry. The average lumber dealer has few calls for these species.

TYPES OF HARDWOOD FLOORS

Most hardwood flooring in the United States is manufactured by mills which specialize in that activity. They are equipped to produce flooring of different styles or types, with the result that a type of hardwood flooring can be obtained to harmonize with any style of architecture or furnishings. Broadly, these types are classified as strip, plank, and pattern or parquet flooring. A fourth type, known as block flooring, is sometimes given a separate classification, although strictly speaking it is a form of parquetry.

Strip Flooring

Strip flooring is the type most extensively used. Practically all species are produced in this form. As the name implies, this type consists of flooring pieces cut in narrow strips of varying thicknesses. The thinner strips are used chiefly in remodeling wherein a new floor is laid over an old. In such cases it may not be expedient to reduce room height by using thick flooring, which also is more expensive. The prime objective, appearance rather than strength, is nevertheless achieved.

Despite its extensive usage, strip flooring should not be considered commonplace, since no two hardwood floors are exactly alike. Each has individuality in character and beauty of grain. Most floors of this type are composed of strips of uniform width. Interesting patterns are formed by use of stock selected for variations in color, mineral streaks or other natural irregularities. Attractive designs also may be achieved by using strips of random widths. Most hardwood strip flooring nowadays is tongued and grooved at the factory, so that each piece joins its neighbor snugly when laid. Square-edge strips, however, are available.

Plank Flooring

One of the oldest types of hardwood floors, plank flooring dates back to the handicraft era. In its crude early forms it was widely used in medieval Europe, and later became a popular flooring for American colonial homes. Just before the late war the demand for it was increasing for use in homes, clubs and other buildings where an atmosphere of rugged informality was desired. Colonial plank flooring derived much of its charm from its rough effects and interesting irregularities, which were unintentional. This charm is retained in modern manufacture by machines which simulate those defects.

Oak customarily is preferred by those specifying plank floors, so production of them ordinarily is confined to that species. Some manufacturers, however, produce plank flooring in solid walnut and East Indian teak, as well as in various veneers.

Plank floors usually are of random width pieces. Generally the pieces are tongued and grooved, but sometimes they are produced with plain ends. Frequently the edges of planks are beveled to reproduce the effect of the large cracks which characterized early hand-hewn plank floors. The wood pegs by which the old plank floors were fastened also are simulated. This is done by means of wood plugs glued in holes on top of the countersunk screws which actually fasten the planks.

Pattern or Parquet Flooring

Pattern floors, also known as parquet and design floors, appeared as early as the 14th century in Europe. While today, as then, they represent the most elaborate and expensive type of hardwood flooring, they have been simplified to a great extent. Early pattern floors presented bizarre effects which would be incompatible with present architectural styles. Today's parquetry usually assumes geometric patterns such as squares, rectangles and herringbone. Yet an almost infinite variety of effects may be achieved. Literally hundreds of designs are available, many featuring variations of species or of shades of the same species. Most parquet flooring is of oak, although it also is produced in maple, beech, birch, walnut, mahogany, East Indian teak and ebonized wood. The latter consists of dyed white maple or holly.

Parquetry is manufactured in short lengths of individual pieces. Each piece must be cut to exact dimensions so it will match perfectly the dimensions of another piece, or multiples thereof. Customarily tongued and grooved, the pieces are laid separately, either by nailing or setting in mastic.

Block Flooring

Block flooring, as stated above, is really a form of parquetry, since it constitutes a definite pattern. It differs from conventional parquetry in that the pieces are assembled into square or rectangular blocks at the factory. They are held together by metal splines or other types

of fasteners on the back or at the ends. These prefabricated blocks are laid as units, either in mastic or by nailing.

SIZES

Strip flooring of oak, maple, beech, birch and pecan is manufactured in a variety of sizes ranging in width from 1½ inches to 3¼ inches and in thickness from 5/16-inch to 1⅝ inches. The standard thicknesses for tongued and grooved strip flooring are ½-inch, ⅜-inch and 25/32-inch. Strips of these thicknesses are most commonly used for homes, hence produced in greatest volume and available at lower cost than special thicknesses. The 25/32-inch pieces, most widely employed, are manufactured in five widths: 1½ inches, 2 inches, 2¼ inches, 2¾ inches and 3¼ inches. Most popular is the 2¼-inch width.

Square edge oak strip flooring ordinarily is produced in only two sizes, 5/16 x 1½ inches and 5/16 x 2 inches. Maple, beech, birch and pecan, square-edge, come in two thickness, 25/32-inch and 17/16 inch. Widths of 2½ inches and 3½ inches are available in each thickness. Length of strips in a bundle of flooring varies according to grade, the highest grade specifying an average length of 5 feet, the lowest 2½ feet. Some strips may be as long as 16 feet. (See Table).

Solid planks generally are processed in 25/32-inch thickness, veneers in ⅞-inch. Special thicknesses of 1 1/16 inches for solid and 1⅛ inches for veneer can be manufactured at extra cost, but this is seldom recommended. Widths range from 4 to 9 inches in multiples of 1. Minimum length for certain types is 2 feet, for others 3 feet.

Parquetry is manufactured principally in 25/32-inch thickness. Most common faced width for each piece is 2¼ inches, but width of 1½, 2 and 3 inches can be obtained by special order. Standard lengths are in multiples of face width. For example, in strips 2¼ inches wide, the lengths are 6¾ inches, 9 inches, 11¼ inches, 13½ inches, 15¾ inches and 18 inches.

Prefabricated blocks are made in thicknesses of ½-inch, 25/32-inch and 33/32 -inch. Customary strip widths are 1½, 2, 2¼, 3¼ and 4 inches. All thicknesses are not produced in every width. Dimensions for the completed blocks, of course, are in multiples of the strip widths. Squares assembled from pieces 2¼ inches wide, for instance, usually are 6¾ x 6¾ inches, 9 x 9 inches or 11¼ x 11¼ inches. Rectangular blocks of this strip width customarily are 6¾ x 6¾ inches.

GRADING OF HARDWOOD FLOORING

The principal American producers of hardwood strip flooring have, through two major trade associations, adopted uniform grading rules and regulations for commercial practice. Approved by the Bureau of Standards of the U. S. Department of Commerce, these rules and regulations are enforced rigidly, in part by the organization themselves. As a result dealers and consumers are assured of high standard merchandise and the industry is protected against sharp practices. The two organizations are National Oak Flooring Manufacturers' association, with headquarters at Memphis, Tenn., and the Maple Flooring Manufacturers' association, Chicago, Ill.

Every four or five bundles of flooring produced by a member of either association bears the copyrighted association label that certifies the grade. The label on oak flooring, for example, states that the flooring is "guaranteed and marked for grade by the manufacturer; is inspected and certified by the National Oak Flooring Manufacturers' Association to meet all requirements" of the Commercial Standard set jointly by the association and the Bureau of Standards. Additionally, each piece of flooring bears on the back the imprinted initials of the association. The initials "NOFMA" represent the oak group, "MFMA" the maple. Usually the manufacturers' name and a mill mark of identification also are stated.

There are no official grading rules for plank, parquet and block flooring, but generally the different grades correspond to those of strip flooring.

Hardwood flooring grades are based principally on appearance. All regular grades possess adequate strength, durability and resistance to wear, hence these qualities are not factors. Chiefly considered are such imperfections as knots, streaks, pin worm holes and in some cases sapwood and variations in color. Imperfections in processing also are factors.

Oak

In oak, sapwood is considered a defect, and the lower the grade the more sapwood allowed. Otherwise, variations in color are disregarded in grading. In most cases the average length of strip flooring pieces is greater in the higher grades. Oak is classified into three grades of quarter-sawed stock and four of plain-sawed. In descending order the quarter-sawed grades are: Clear, Sap Clear and Select. Plain-sawed grades are: Clear, Select, No. 1 Common and No. 2 Common. (See Table).

Maple, Beech, Birch

Rules governing the grading of maple, beech and birch are virtually identical for all three species. Neither sapwood nor varying natural color is considered a defect. These species are produced in three standard grades. First, Second and Third, with First being the highest. Each also is available in a special grade selected for uniformity of color. (See Table).

Pecan

Pecan is processed in seven standard grades, two of which specify all heartwood, and one bright sapwood. Otherwise color variation is not considered. (See Table).

PRE-FINISHED HARDWOOD FLOORING

When hardwood flooring is produced in unfinished form, sanding and other finishing operations are performed after the floor has been installed. Some manufacturers produce flooring which is completely pre-finished at the factory. It is ready for use immediately after being laid. All species and types of hardwood flooring may not be readily available in this form; but a manufacturer equipped to make factory finished flooring usually can furnish it in any species and type he ordinarily produces unfinished.

INSTRUCTIONS FOR STORAGE AND DELIVERY

Certified hardwood flooring is kiln-dried at the factory to a low moisture content. Moisture content later equalizes itself, however, to the moisture condition in the area where the flooring is used.

For best results the flooring must be protected from the elements during storage and delivery. This guards against excessive shrinkage or expansion which may cause cracks or buckling after the floor has been laid. Manufacturers, who ship hardwood flooring in closed box cars, recommend the following precautions in handling:

1. Do not unload, truck or transfer hardwood flooring in rain or snow. Cover it with tarpaulin if the atmosphere is foggy or damp.
2. Do not store flooring in leaking or open enclosures.
3. Do not pile flooring on storage floors that are less than 18 inches from the ground and do not have good air circulation underneath.
4. Do not unload flooring outside of shelter at its point of use.
5. Do not store or lay flooring in a cold or damp building. Wait until the plaster and cement work have dried thoroughly and the woodwork and trim have been installed.
6. Especially in winter construction, the building in which the flooring is to be used should first be heated to 70 degrees F. Then the flooring should be piled loosely in the building at least four or five days before being laid. This permits the flooring to reach a moisture content equivalent to that of the building.

SUGGESTIONS FOR APPLICATION

1. For most satisfactory results it is generally recommended that hardwood strip flooring be laid on a soundly constructed subfloor about an inch thick. Subfloor boards preferably should be no wider than 6 inches and should be spaced about ⅛-inch apart. They should be face nailed solidly at every bearing point with two 10-penny nails. All butt joints should rest on bearings. If wider boards are used, there should be extra nailing at each bearing. The 6-inch boards, however, are recommended because

they are subject to less shrinkage and expansion. Inadequate nailing of sub-floor boards often results in squeaky floors.

2. Subfloors generally should be laid diagonally. Added bracing strength is given a building if the diagonal direction is reversed on alternate floors.

3. Strip floors preferably should be laid lengthwise of the building, that is, at right angles to joists. If applied over old finish floors, however, they should be at right angles to them. In modern home construction thresholds between adjoining rooms are omitted. Floor strips should run continuously through doorways.

4. If necessary in the interest of economy, strip flooring may be laid directly on joists. To make the floor suitably strong and durable, however, such floor strips should be at least 25/32-inch thick. Joists should be spaced no wider than 16 inches.

5. Strip floors may be installed over basement or other concrete floors by laying the strips directly on wooden sleepers properly secured to the concrete. Conditions cited in above paragraph apply in this case.

6. In cases where strip flooring is to be laid over concrete in a school or other building in which heavy traffic is anticipated, a wooden subfloor is recommended as a base. The subfloor should be nailed to wooden sleepers installed in the concrete when it is poured. Spaced at no more than 16 inches, the sleepers should be securely attached to the concrete, preferably with steel clips.

7. A good quality building paper, the type known as 15 pound asphalt, saturated felt should be laid between the subfloor and the finish floor. Besides absorbing moisture which otherwise would permeate the finish floor, the building paper prevents dust from seeping through the floor seams. In basement installations the building paper should be placed directly over the concrete. For rooms directly over heating plants double weight building paper or standard insulating board is recommended. Applied either on the basement ceiling or between floor joists, these provide protection against excessive heat which might cause the floor to buckle.

8. Ventilation should be provided beneath buildings without basements. This may be done by means of vents or other openings in the foundation walls. The openings should be at least 1½ percent of the first floor area.

9. Strip flooring should not be laid tight against studding or walls. An expansion space of not less than ½-inch should be allowed.

10. Tongued and grooved strips always should be toenailed, that is, with the nails at the end of each piece driven through the tongue at an angle of 45 to 55 degrees. The flooring also should be blindnailed, that is, set with a nail-set. Square-edge strips, of course, are face-nailed.

11. In plank flooring each piece, in addition to being blind-nailed, should be face-nailed about every 30 inches. The ends of each piece also should be fastened to the subfloor with countersunk screws. Wood plugs glued in the plank conceal screwheads and lend decorative effect.

12. The recommendations regarding subfloors for strip flooring also apply to plank flooring.

13. Parquet flooring, including prefabricated blocks, may be nailed over a wood subfloor or old finish floor, or it may be laid in mastic over concrete. Preferably the subfloor should cross the joists at right angles rather than on a diagonal. When it is installed before the type of finish flooring has been decided upon, it is best to lay it at a 60 degree angle. This "compromise" construction will make it adaptable to any type of flooring.

14. Where a concrete floor in involved, some manufacturers strongly recommend that a wood subfloor be laid in mastic over the concrete and that the finish flooring be nailed to it.

15. When parquetry is to be laid in mastic directly over concrete, extreme care must be taken that the concrete surface is perfectly clean, dry and level. Brushing the surface with a hair broom is recommended for ridding the concrete of loose dirt. A heavy coat of asphalt primer should be then applied evenly, brushed in well, and allowed to dry for 24 hours before the mastic is applied and the finish floor laid. Mastic usually is spread to a minimum average thickness of 3/32-inch.

16. When parquetry is to be laid over concrete that is directly on the ground or over unventilated spaces, and there is a consequent danger of floor dampness, the concrete floor should be first waterproofed. This may be done by applying a coat of hot asphalt and covering it with asphalt saturated felt. In cases where the dampness is excessive, use three layers of felt, with asphalt rolled smoothly on each layer. If there is danger of water seepage, use five layers.

SUGGESTIONS FOR FINISHING HARDWOOD FLOORS

Although certified unfinished hardwood flooring is smoothly surfaced at the factory, scratches and other slight marks caused by handling usually appear when the floor has been laid. These may be removed by sanding or scraping, preferably by a specialist in that line. Nowadays an electrically operated sanding machine generally is used for this work, since sanding or scraping by hand is laborious and time consuming. For fine floors most manufacturers advise at least four sandings, starting with No. 2 sandpaper and graduating down to No. ½, No. 0 and No. 00. A final buffing witn No. 00 or No. 000 sandpaper assures an even smoother surface. Many authorities say that best results are obtained when the final traverse is made by hand.

Stain

It is important that the first coat of stain or other finish be applied the same day as the last sanding. Otherwise the wood grain will have risen and the finish consequently will be slightly rough. Stain is not used if one desires a finish retaining the natural color of the wood. When used, it is applied first, before wood filler or other finishes. It should be put on evenly, preferably with a brush 3 or 4 inches wide.

Wood Filler

Paste wood filler frequently is used to fill the minute surface crevices in oak and other hardwoods having large pores. It gives the floor the perfectly smooth surface required for a lustrous appearance. Filler is applied before any other finishing materials, except stains and it is important that it be allowed to dry for 24 hours before the next operation is begun. Wood filler may be colorless or it may contain pigment to bring out the grain of the wood more contrastingly. For residential oak flooring, wood filler is nearly always recommended. Sometimes it is omitted when seal is used. Recommendations of floor seal manufacturers vary in this regard.

TYPES OF FINISH

The ideal qualities of a finish for hardwood floors are: 1) attractive appearance; 2) durability; 3) ease of maintenance; 4) capacity for being retouched in worn spots without revealing a patched appearance. Additionally, when a finish is applied to high grade flooring of considerable natural beauty, it usually should be transparent in order to accentuate that beauty. The three principal types of finishes are: floor seal, varnish and shellac. Lacquer also is used occasionally.

Penetrating Seal

Penetrating seal, a relatively new type material, is being used on an increasingly large scale for residential as well as heavy duty flooring. It differs from other finishes in this important respect: rather than forming a surface coating, it penetrates the wood fibers, sealing them together. In effect it becomes a part of the wood itself. It wears only as the wood wears, does not chip or scratch and is practically immune to ordinary stains and spots. While it does not provide as shiny an appearance as other finishes, it has the advantage of being easily retouched. Worn spots may be refinished without presenting a patched appearance. Floor seals are available either colorless or in color.

Varnish

Varnish presents a glossy appearance, is quite durable, fairly resistant to stains and spots, but will show scratches. It is difficult to patch worn spots, however, without leaving lines of demarcation between the old and the new varnish. New types of varnish dry in eight hours or less. Like the other types of finish it gives satisfactory results if properly waxed and otherwise maintained.

Shellac

One of the chief reasons shellac is so widely used is its quick-drying property. Workers, starting with floors in

the front of a house and shellacking toward the rear, may begin applying the second coat by the time they have finished the first. Shellac spots rather readily if water or other liquids remain on it long. It is transparent and has a high gloss. It does not darken with age as quickly as varnish.

Sometimes used is a combination varnish-shellac finish which embodies most of the advantages as well as the disadvantages of each material.

Lacquer

Lacquer is a glossy finish with about the same durability as varnish. Because it dries so rapidly it requires considerable skill in application. Worn spots may be retouched with fairly good results, since a new coat of lacquer dissolves the original coat.

APPLICATION

Floor seal—It is difficult to give specific directions for applying floor seal, inasmuch as directions of different manufacturers vary widely. Generally, however, it is applied across the grain first, then smoothed out in the direction of the grain. A wide brush, a squeegee or a wool applicator may be used. After a period of 15 minutes to 2 hours, depending on specific directions of the manufacturer, the excess seal should be wiped off with clean cloths or a rubber squeegee. For best results the floor then should be buffed with No. 2 steel wool. An electric buffer makes this task relatively simple. If a power buffer is not available, a sanding machine equipped with steel wool pads may be used; or the buffing may be done by hand. Although one application of seal sometimes is sufficient, a second coat frequently is recommended for new floors or floors that have just been sanded.

Varnish—Precise directions for application of varnish usually are stated on containers. Varnish made especially for floors is much preferred. So-called all-purpose varnish ordinarily is not so durable when used on floors. As a rule three coats are required when varnish is applied to bare wood, but two coats usually are adequate when wood filler has been used or a coat of shellac has been applied first, as is sometimes the case. Cleanliness of both floor and applicator is essential to a smooth finish. Drying action is hastened when room temperature of at least 70 degrees F. is maintained and plenty of ventilation provided.

Shellac—Shellac to be used on floors should be fresh or at least be in a glass container. If it remains too long in a metal container it may accumulate salts of iron, which discolors oak and other hardwoods containing tannin. It should be unadulterated with cheaper resins, but before using should be thinned with 188-proof No. 1 denatured alcohol. Recommended proportion is 1 quart of thinner to a gallon of 5-pound cut shellac. A wide brush that covers three boards of strip flooring is the most effective and convenient size for application. Strokes should be long and even, with laps joined smoothly.

The first coat on bare wood will dry in 15 to 20 minutes, after which the floor should be rubbed lightly with steel wool or sandpaper, then swept clean. A second coat should be applied and allowed to dry for 2 to 3 hours. Then the floor should be rubbed again with steel wool or sandpaper and be swept. A third coat then is applied. If necessary, the floor may be walked on about 3 hours after being finished, but preferably it should remain out of service overnight.

Wax

All hardwood floors should be waxed after the finish has dried thoroughly. In some cases two or three coats are recommended for best results. Wax not only imparts a lustrous sheen to a floor, but forms a protective film that prevents dirt from penetrating the wood pores. When it becomes dirty, it is easily removed and new wax applied.

Floor wax is available in two forms—paste and liquid. The liquid type recommended for hardwood floors is known as rubbing wax. Considered about equal in performance, both forms are applied in much the same manner. Usually the wax is mopped on with a cloth, then polished after an interval of 15 to 30 minutes with a soft cloth, a weighted floor brush or an electric polisher. The latter is preferred, for it eliminates a great deal of labor and does the job equally well, if not better. Some electric polishers apply the wax and polish it in the same operation. Power driven polishing machines, as well as sanding and buffing machines helpful in the earlier finishing steps, may be rented in most communities.

RULES GOVERNING RE-INSPECTION

In the manufacture and grading of oak flooring the very best types of machinery, equipment and workmen are employed, but occasionally some pieces get into wrong grades by error.

Therefore, if the re-inspection results in a difference in favor of the purchaser of more than five (5) percent in feet, as shown on the invoice, then the shipper will be considered as being in the wrong and shall issue a corrected invoice in accordance with the re-inspection, and pay all the expenses of the re-inspection.

If on the other hand, the difference is only five (5) percent or less in feet, then the party making the complaint shall not be entitled to any reduction from the invoice, and should, furthermore, be charged with all the expenses of the re-inspection. A minimum charge of $15.00 shall be made on each re-inspection or investigation.

The quality and condition of the oak flooring when it leaves the manufacturer is held to govern the re-inspection.

STANDARD FLOORING GRADES
OAK
QUARTER SAWED

Clear—The face shall be practically free of defects except ⅜ of an inch of bright sap. The question of color shall not be considered.

Bundles to be 2 ft. and up, not to exceed 20% under 4 ft. Average length 5 ft.

Sap Clear—The face shall be practically free from defects but will admit unlimited bright sap. The question of color shall not be considered.

Bundles to be 2 ft. and up, not to exceed 20% under 4 ft. Average length 5 ft.

Select—The face may contain sap, and will admit pin worm holes, streaks, slight imperfections in working or a small tight knot, not to exceed one to every 3 ft. in length.

Bundles to be 2 ft. and up. Average length 4 ft.

Square edge strip flooring is graded as above, but the Clear is bundled 3 ft. and up, average length 6 ft.; Select bundles 3 ft. and up, average length 5 ft; Select bundled 3 ft. and up, average length 5 ft.; No. 1 Common bundled 2 ft. and up, average length 4 ft.

HARD MAPLE, BEECH, BIRCH

First Grade—Shall have the face practically free of all defects, but the varying natural color of the wood shall not be considered a defect. Standard lengths in all widths in this grade shall be trimmed 2 to 16 ft. as the stock will produce; the proportion of lengths 2 to 3½ ft. inclusive, shall be what the stock will produce up to 25%.

Second Grade—Will admit of tight, sound knots and slight imperfections in dressing, but must lay without waste. Standard lengths in all widths in this grade shall be trimmed 1½ to 16 ft., as the stock will produce; the proportions of length 1½ to 3½ ft., inclusive, shall be what the stock will produce up to 40%.

Third Grade—Must be of such character as will lay and give a good serviceable floor. Standard lengths in all widths in this grade shall be trimmed 1 to 16 ft. as the stock will produce; the proportion of lengths 1 to 3½ ft., inclusive, shall be what the stock will produce up to 60%.

Special Grades—First Grade White NOFMA Hard Maple is special stock, selected for uniformity of color. It is almost ivory white and is the finest grade of NOFMA Hard Maple Flooring that can be produced.

First Grade Red NOFMA Beech and NOFMA Birch are special grades produced from all red-faced stock, and are specially selected for color. The color is rich, being a soft tint which lends to these two woods an individuality found in no other species.

PLAIN SAWED

Clear—The face shall be practically free of defects ex-

cept ⅜ of an inch of bright sap. The question of color shall not be considered.

Bundles to be 2 ft. and up, not to extend 20% under 4 ft. Average length 5 ft.

Select—The face may contain sap, and will admit pin worm holes, streaks, slight imperfections in working or a small tight knot, not to exceed one to every 3 ft. in length.

Bundles to be 2 ft. and up. Average length 4 ft.

No. 1 Common—Shall be of such nature as will make and lay a sound floor without cutting.

Bundles to be 2 ft. and up. Average length 3 ft.

No. 2 Common—May contain defects of all characters, but will lay a serviceable floor.

Bundles to be 1¼ ft. and up. Average length 2½ ft.

PECAN

First Grade—Shall be practically free of defects, but the varying natural color of the wood shall not be considered a defect. Bundled 2 to 16 feet, not over 25% of the footage shall be 2 and 3 feet.

First Grade Red—Same as First Grade except shall be made from all Heart wood.

First Grade White—Same as First Grade except shall be made from all bright Sap wood.

Second Grade—Will admit of tight sound knots, pin worm holes, streaks and slight imperfections in working. Bundled 2 to 16 feet, not over 30% of the footage shall be 2 and 3 feet.

Second Grade Red—Same as Second Grade except shall be made from all Heart wood.

Third Grade—Shall be of such nature as will make and lay a sound floor without cutting. Bundled 2 to 16 feet, not over 50% of the footage shall be 2 and 3 feet.

Fourth Grade—May contain defects of any character so long as will lay a serviceable floor. Bundled 1¼ to 16 feet.

How to Estimate the Amount of Hardwood Flooring Required for a Given Space

To cover a certain space, figure the number of square feet, which means the width multiplied by the length; for instance, a room 12 feet wide by 15 feet long would contain twelve times fifteen or 180 square feet. Add to the square feet of surface to be covered the following percentages:

50% for	25/32"x1½"
37½% for	25/32"x2"
33⅓% for	25/32"x2¼"
24% for	25/32"x3¼"
33⅓% for	⅜"x1½"
25% for	⅜"x2"
33⅓% for	½"x1½"
25% for	½"x2"

The above figures are based on laying flooring straight across the room. Where there are bay windows or other projections, allowance should be made for additional flooring. It is always well to order 5% additional flooring to take care of floor layers' cutting and possible damage if carelessly handled.

The following table shows the available sizes of prefabricated blocks—squares and rectangles—of oak, hard maple, beech and walnut:

Strip width	½-inch thick	25/32-inch thick	33/32-inch thick
	Inches	Inches	Inches
1½ inches.	7½ by 7½	7½ by 7½	7½ by 7½
	9 by 9	9 by 9	9 by 9
	6 by 12	6 by 12	6 by 12
2 inches...	8 by 8	8 by 8	8 by 8
	10 by 10	10 by 10	10 by 10
	6 by 12	6 by 12	6 by 12
	Inches	Inches	Inches
2¼ inches.	.....	6¾ by 6¾	6¾ by 6¾
	.....	9 by 9	9 by 9
	.....	11¼ by 11¼	11¼ by 11¼
	.....	6¾ by 13½	6¾ by 13½
3¼ inches.	.....	6½ by 13	6½ by 13

SALES ITEMS

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

STANDARD SIZES, COUNTS and WEIGHTS

OAK

Nominal	Actual	Counted	Weights M Ft.
TONGUE AND GROOVE-END MATCHED			
25/32x3¼ in.	25/32x3¼ in.	1x4 in.	2250 lbs
25/32x2¼ in.	25/32x2¼ in.	1x3 in.	2000 lbs.
25/32x2 in.	25/32x2 in.	1x2¾ in.	2000 lbs.
25/32x1½ in.	25/32x1½ in.	1x2¼ in.	2000 lbs.
⅜x2 in.	11/32x2 in.	1x2½ in.	1000 lbs.
⅜x1½ in.	11/32x1½ in.	1x2 in.	1000 lbs.
½x2 in.	15/32x2 in.	1x2½ in.	1300 lbs.
½x1½ in.	15/32x1½ in.	1x2 in.	1300 lbs.
SQUARE EDGE			
5/16x2 in.	5/16x2 in.	face count	1200 lbs.
5/16x1½ in.	5/16x1½ in.	face count	1200 lbs.

NOTE: Oak, Beech, Birch, Hard Maple and Pecan Flooring are bundled by averaging the lengths. A bundle may include pieces from 6 in. under to 6 in. over the nominal length of the bundle No piece shorter than 9 in. admitted

The percentages under 4 ft. referred to above apply on total footage in any one shipment of the item.

¾-in. allowance shall be added to the tongue on the end matching when measuring the lineal length of each piece.

Flooring shall not be considered of standard grade unless the lumber from which the flooring is manufactured has been properly kiln-dried.

BEECH, BIRCH, HARD MAPLE AND PECAN

Nominal	Actual	Counted	Weights M Ft.
TONGUE AND GROOVE-END MATCHED			
25/32x3¼ in.	25/32x3¼ in.	1x4 in.	2250 lbs.
25/32x2¼ in.	25/32x2¼ in.	1x3 in.	2000 lbs.
25/32x2 in.	25/32x2 in.	1x2¾ in.	2000 lbs.
25/32x1½ in.	25/32x1½ in.	1x2¼ in.	2000 lbs.
⅜x2 in.	11/32x2 in.	1x2½ in.	1000 lbs.
⅜x1½ in.	11/32x1½ in.	1x2 in.	1000 lbs.
½x2 in.	15/32x2 in.	1x2½ in.	1300 lbs.
½x1½ in.	15/32x1½ in.	1x2 in.	1300 lbs.
SPECIAL THICKNESSES (T and G, End Matched)			
17/16x3¼ in.	33/32x3¼ in.	5/4x4 in.	2400 lbs.
17/16x2¼ in.	33/32x2¼ in.	5/4x3 in.	2250 lbs.
17/16x2 in.	33/32x2 in.	5/4x2¾ in.	2250 lbs.
JOINTED FLOORING—i.e., SQUARE EDGE			
25/32x2½ in.	25/32x2½ in.	1x3 in.	2250 lbs.
25/32x3½ in.	25/32x3½ in.	1x4 in.	2400 lbs.
17/16x2½ in.	33/32x2½ in.	5/4x3 in.	2500 lbs.
17/16x3½ in.	33/32x3½ in.	5/4x4 in.	2600 lbs.

Still not enough

BRADLEY Pre-Finished FLOORING

to go 'round, but . . .

While you're waiting, it will pay you well to learn why enthusiasm for Bradley Pre-Finished is spontaneous wherever it is installed!

Contractors, floor-layers, realtors and home-owners, who know it at first hand, are unanimous in their enthusiasm for Bradley Pre-finished Hardwood Flooring. Here's why . . .

CONTRACTORS:
Because of its time-saving factor . . . when it's down, it's done.

FLOOR-LAYERS:
Because its straight-line feature expedites laying. Tongue and groove slide into position. No crook to be forced, no tension nailed in.

REALTORS:
Because it shortens the time lag between installation and first showing, and because of its compelling eye appeal to prospects.

HOME-OWNERS:
Because it provides a superior hardwood floor of exceptional beauty at no extra cost.

In this unique combination of practical economy, plus the dignity and beauty inherent in quality hardwood flooring, Bradley Pre-finished will afford dealers and builders direct access to a larger share of tomorrow's hardwood floor sales.

Manufactured in
OAK . . . BEECH . . . PECAN

BRAND BRADLEY

BRADLEY LUMBER COMPANY *of Arkansas*

WARREN, ARKANSAS

Anticipating the time when Bradley Pre-finished will again be available, dealers and builders are invited to write for literature and specifications.

Floors, Floor Coverings, Treatments

Count	Oak ¼ Swd.	Oak P.S.	Beech No.	Birch No.	Maple No.	Pecan No.
	( )Clear	( )Clear	( )1	( )1	( )1	( )1
25/32x1½	1x2¼ ( )Select	( )Select	( )2	( )2	( )2	( )2
		No. 1 Com	( )3	( )3	( )3	( )3
	( )Clear	( )Clear	( )1	( )1	( )1	( )1
25/32x2	1x2¾ ( )Select	( )Select	( )2	( )2	( )2	( )2
		No. 1 Com	( )3	( )3	( )3	( )3
	( )Clear	( )Clear	( )1	( )1	( )1	( )1
25/32x2¼	1x3 ( )Select	( )Select	( )2	( )2	( )2	( )2
		No. 1 Com	( )3	( )3	( )3	( )3
	( )Clear	( )Clear	( )1	( )1	( )1	( )1
25/32x3¼	1x4 ( )Select	( )Select	( )2	( )2	( )2	( )2
		No. 1 Com	( )3	( )3	( )3	( )3
	( )Clear	( )Clear	( )1	( )1	( )1	( )1
½x1½	1x2 ( )Select	( )Select	( )2	( )2	( )2	( )2
		No. 1 Com	( )3	( )3	( )3	( )3
	( )Clear	( )Clear	( )1	( )1	( )1	( )1
½x2	1x2½ ( )Select	( )Select	( )2	( )2	( )2	( )2
		No. 1 Com	( )3	( )3	( )3	( )3
	( )Clear	( )Clear	( )1	( )1	( )1	( )1
⅜x1½	1x2 ( )Select	( )Select	( )2	( )2	( )2	( )2
		No. 1 Com	( )3	( )3	( )3	( )3
	( )Clear	( )Clear	( )1	( )1	( )1	( )1
⅜x2	1x2½ ( )Select	( )Select	( )2	( )2	( )2	( )2
		No. 1 Com	( )3	( )3	( )3	( )3

Special Thickness Flooring

Oak ¼ swd.	Oak P.S.	Beech No.	Birch No.	Maple No.	Pecan No.
( ) Clear	( ) Clear	( )1	( )1	( )1	( )1
( ) Select	( ) Select	( )2	( )2	( )2	( )2
No. 1 Com		( )3	( )3	( )3	( )3

Square-Edge Flooring

( ) Clear	( ) Clear	( )1	( )1	( )1	( )1
( ) Select	( ) Select	( )2	( )2	( )2	( )2
No. 1 Com		( )3	( )3	( )3	( )3

ASPHALT TILE FLOORING

Asphalt tile flooring is becoming increasingly popular with both home owners and renters for kitchens, bathrooms, recreation rooms, terraces, basement floors, etc.

Until very recently sales of this product were confined to metropolitan areas and were made through specialty application contractors.

However, the widespread public acceptance and the greatly increased production of this material indicate that composition floorings will, in the future, become a standard item in the lumber dealers' flooring department.

Asphalt tile is resistant to both moisture and alkali. It is made of inert raw materials such as asbestos fibres, asphaltic or resinous binders and is pre-waxed at the factory. It has been widely used on concrete subfloors that are in direct contact with the earth on or below grade, but is adaptable to any condition where flooring is used. It is sold in ⅛" and 3/16" gauges and in block sizes 9x9, 12x12, and in some colors in 18" and 24" sizes. A variety of color combinations is offered.

A greaseproof grade is made for such uses as hotel and restaurant kitchens, cafeterias and other areas where oil or grease may be prevalent.

It is also manufactured in an industrial grade with a non-slip surface adaptable to gymnasiums, night clubs, etc., as well as individual usage. This grade is customarily manufactured and sold in black.

( ) Asphalt Tile Flooring
  ( ) Grease-Proof
  ( ) Industrial
  ( ) Standard
( ) Edge Grain Porch Flooring
( ) Pre-Fabricated Block Flooring
( ) Pre-Fabricated Plank Flooring
( ) Pre-Finished Oak Flooring
( ) Rubber Tile Flooring

_____

_____

( ) Insulating Concrete Floor Aggregate
( ) Mastic Floor Aggregate
( ) Mastic Flooring

_____

_____

Accessories

( ) Adhesives
( ) Bonds
( ) Damp Proofing Treatments
( ) Dust Proofing Treatments
( ) Enamels
( ) Fillers
( ) Floor Cleaners
( ) Floor Polishers
( ) Floor Sanders
( ) Floor Wax
( ) Hardeners
( ) Paints
( ) Preservatives
( ) Sealers
( ) Stains
( ) Varnishes

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Items Asked For But Not Normally Stocked

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_____

Nails and Nailing: The use of proper nails and proper and careful nailing, holds the flooring in place, **makes the floor rigid,** and **prevent squeaks.** Start the nails through the strip where the tongue leaves the shoulder, and drive inwardly at an angle of 45 or 50 degrees to the floor. Countersink all nail heads by use of a steel set or use a nail for setting. Do not attempt to do this with hatchet or hammer, as this is liable to cause bruises and scares that cannot be removed by scraping and sanding.

Consult the following table for the proper nails to use and their spacing:

NAIL SCHEDULE

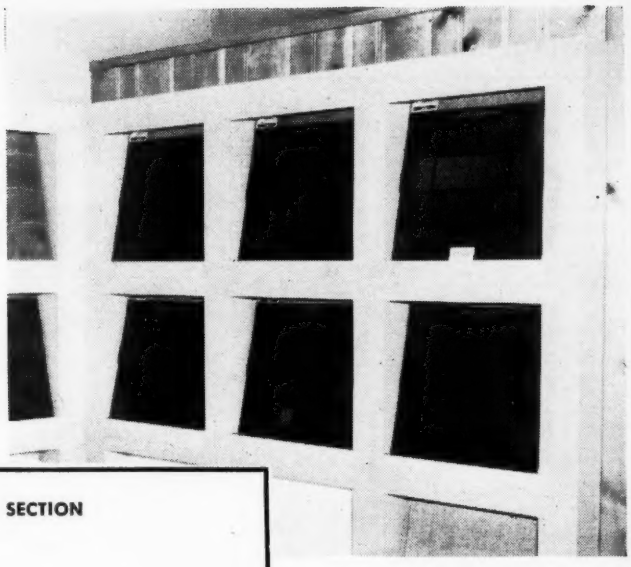
Tongue-and-Groove Oak Flooring Must Be Blind Nailed

Flooring Dimension	Size of Nails	Spacing of Nails
25/32 x 3¼"	8-penny light flooring nail—wire nail or steel cut casing nail—(use cut nails when possible).	10 inches apart
25/32 x 2¼"	Same nails as above	10 inches apart
25/32 x 1½"	Same nails as above	12 inches apart
Following sizes of oak flooring must **always** be laid on a sub-floor, and blind nailed:		
½ x 2" or ½ x 1½"	6-penny bright wire casing nails	10 inches apart
⅜ x 2" or ⅜ x 1½"	4-penny bright wire casing nails	8 inches apart
Square-edge flooring, as follows, to be face-nailed—through tops face—instead of blind nailed:		
5/16 x 2" or 5/16 x 1½"	1⅛" barbed wire flooring brad No. 16, heads countersunk and puttied	2 nails every 7 inches

NOTE: The actual **thickness** of oak flooring (except 5/16" sq. edge) in each case is 1/32" less than given in table. The **widths** are actual.

Section 8

Roofing, Shingles & Siding



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Sales Items
How to Figure Roof Areas
Asphalt Shingles
Asphalt Roll Roofing
Mineral Surface Roofing
Asphalt Roof Coating and Plastics
Wood Shingles
Corrugated Asbestos Cement Roofing & Siding
Aluminum Roofing
Asbestos Cement Shingles
Wood Siding
Aluminum Siding
Asbestos Cement Siding
Wood Shingles for Siding

For Related Sections See Master Index

ROOFS

General. If any part of a building can be classed as most important for the part it plays in providing shelter, it certainly is the roof. Each type of roofing material has its limitations as well as its advantages. The selection of a proper material for covering a roof is not dependent entirely on its ability to provide protection against the burning sun, frigid blasts, snow, ice, wind, and rain. There are the matters of ease of application and maintenance, economy, permanence, and investment to be considered also. Some materials, and even better grades of the same product, though the initial cost is higher, yield a far better return on the investment by affording longer life and increased protection from fire and weather. Then, too, we have come to identify certain roofing materials with specific types of architecture. Unusual climatic conditions, especially higher-than-normal wind areas, also have to be considered in a proper selection. The slope of the roof is a most important consideration.

How to pick the right type of material in relation to pitch of roof—

Flat roofs —Canvas decking and some types of metal roofing

Slope 1 in. to 1 ft.—Built-up roof of low melt point asphalt

Slope 2 in. to 1 ft.—Built-up roof of higher melt point asphalt

Slope 3 in. to 1 ft.—Any asphalt smooth or mineral surfaced roofing*

Slope 4 in. to 1 ft.—Thick-butt and hexagonal asphalt strip shingles
—Diamond Point asphalt roofing (Re-roofing only)
—Natural slate

Slope 5 in. to 1 ft.—Asbestos shingles†
—Individual asphalt shingles laid Dutch lap

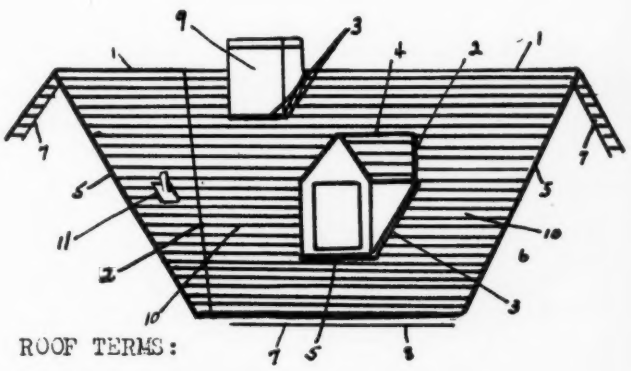
Slope 6 in. to 1 ft.—16 in. red cedar shingles (Can be laid on a slope of 3 in. to 12 in. if laid with an exposure of 3¾ in.)

*Some roofing manufacturers claim smooth surface roofing can be laid on slopes 2 in. to 1 ft.

†One type of asbestos shingles can be laid on slopes of 4 in. to 1 ft.

The Correct Color For a Roof

Another important consideration is the selection of a proper color for a roof. Houses can be made to appear taller by the selection of a bright roof. Roofs of deeper colors, with trim or shutters painted the same color, will make a house seem lower. Blue, brown and red roofs look well against the sky or water. A free choice of colors may be made when the building is placed against a background of trees. Bright colored roofs are good in tree shadows or in the shade of taller buildings. The colors of neighboring buildings should be taken into consideration, too.



ROOF TERMS:

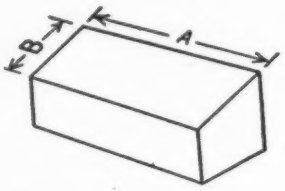
1. Ridge-Comb-Line
2. Valley
3. Flashing
4. Dormer Roof
5. Verge-Edge
6. Gable
7. Eaves
8. Gutter
9. Chimneys
10. Main body of Roof
11. Vent Pipe with Flashing

Roofing, Shingles, Siding

How to Figure Roof Areas

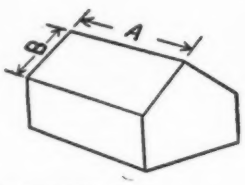
Most all roof products are sold by the square, that is, enough material when laid according to the maker's instructions, to cover 100 square feet of surface. The number of squares required is determined by dividing the square foot area of a roof by 100.

Below are the methods of figuring simple roof areas:



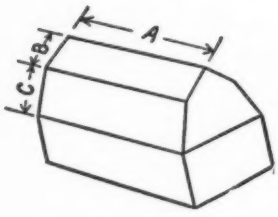
SHED ROOF

Length of roof (A) multiplied by slope of roof (B) gives the total roof area.



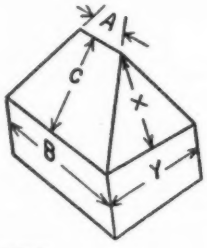
GABLE ROOFS

Figure one pitch same as for shed roofs—then multiply by two.



GAMBREL ROOFS

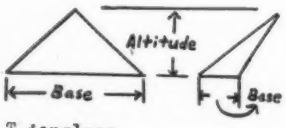
Add length of B and C to determine rafter length. Multiply the sum of these by length of the roof (A). Then multiply by two. The result is the total roof area.



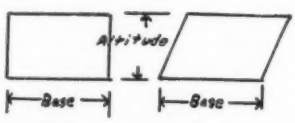
HIP ROOFS

Add length of ridge (A) to length of eave (B) and divide by two. Multiply this sum by slope (C). Multiply slope (X) on the triangle side, by length of short eave (Y). Divide the result by two. Add the two answers and multiply by two and the result is the total roof area.

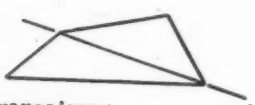
More complex roofs are figured by breaking the roof area up into convenient sections of rectangles, and triangles, and computing the area of each one separately and then adding their total.



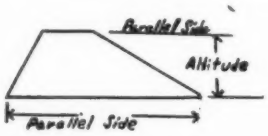
Triangles:
Base x 1/2 Altitude = Area



Parallelograms:
Base x Altitude = Area



Trapeziums:
Divide into 2 triangles and find the area of the triangles.



Trapezoids:
Altitude x 1/2 sum of Parallel sides = Area

Circles:
Diameter x 3.1416 = Circumference
Circumference x .3183 = Diameter
Diameter^2 x .7854 = Area

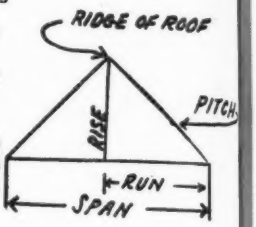
An Approximate Way to Figure Roof Areas

Approximately the area of any roof, no matter how it may be cut up, is determined as follows: Get the exact area of building, including horizontal projection of cornice and add to this the following percentages:

¼ Pitch	Add 12 percent
⅓ Pitch	Add 20 percent
½ Pitch	Add 42 percent
⅜ Pitch	Add 25 percent
⅝ Pitch	Add 60 percent
¾ Pitch	Add 80 percent

For Illustration: Take a building 24 × 40, with one foot cornice and 1/3 pitch: 26 × 40 = 1092 square feet. 20 percent of 1092 = 218. 1092 plus 218 equals 1310 feet, the factual roof area. Add to this amount the cornice projection of dormers.

Roof Pitches Explaining



Span is the total width between the walls.

Rise is the height of the ridge or peak of a gable above the walls.

Run is ½ of the Span.

Pitch relates to the steepness of a roof. It stipulates the proportion of the rise to the span according to the following formula:

$$\text{Pitch} = \frac{\text{Rise}}{\text{Span}}$$

To illustrate, a span of 30′ and a rise of 10′ equals a 10/30 or 1/3 pitch. If a roof is ½ pitch and a building is 24′ wide, the ridge is 12′ above the walls, because ½ of the 24′ span equals 12′.

The rise per foot of run is always equal to the pitch fraction of 24″ because two 12″ runs equal a 24″ span; for example ¼ pitch = 6″ rise per foot of run, because ¼ of 24″ = 6″.

ASPHALT PRODUCTS

Asphalt Shingles

Asphalt shingles are made from a base of high-grade rag felt which is saturated with asphalt and then given a further coating of harder asphalt into which is imbedded colorful mineral granules.

Manufacturers in the past have made many unique patterns, but consumer preference has led to the standardization on two forms—the square butt strip and the hexagonal strip. Hexagonal strips are manufactured with either two or three tabs to the strip. Square butt shingles, which are now given a second coating of asphalt and granules on the exposed portion, are called thick butt strips.

Both forms are made with two kinds of surfaces, smooth and textured to resemble the grain of wooden shingles. The colors run in straight shades of red, green and black and also in blended shades of green, red, blue, brown and purple.

Application

Methods of applying asphalt shingles vary with the types used. Complete directions for application, including flashings, and treatments of valleys, hips, and ridges can be obtained from data sheets supplied by your manufacturer. They are too lengthy to reproduce here, but, for a good roof, the following points should be observed:

Minimum Pitch: Not less than 4″ to the foot. (Preferably 5″.)

Roof Boards: Roof sheathing should be dry, well seasoned, uniformly thick boards, preferably not more than 6″ wide, laid close and properly secured with at least two nails at each rafter. Unfortunately the practice of using any cheap lumber—even lumber that has been used for concrete forms and bracing—is altogether too common. Such boards, being often broken and split, are common causes of leaks and early decay. Knotted, cracked and split boards cause loose nailing and subsequent loosening of the roof material.

Asphalt shingles should not be applied on a wet or damp roof deck.

A ROOFING CUSTOMER FEELS PROUDER OF A CERTAIN-TEED ROOF

★ *A home owner feels proud enough of any new roof.*

★ *But when he can tell his friends it is a new Certain-teed roof, he knows they will fully appreciate the full measure of value he has received.*

★ *A roofing customer's extra pride in a new Certain-teed roof is an extra value to your business.*

BUILD ON

CERTAIN-TEED **THE WELL-KNOWN NAME**

CERTAIN-TEED PRODUCTS CORPORATION • 120 S. LA SALLE STREET • CHICAGO 3, ILLINOIS

Saturated asphalt felt laid between the roof deck and the shingles adds to the life of the roof. Lap at least 2" at all joints. Be sure that the roof is well ventilated to prevent the roof boards from warping or swelling.

Nails should be rust-proof, galvanized, or of other rustless material; long enough to extend ⅝" into the sheathing board. They must not protrude, however. On new work use 1" nails for hexagonal strips and 1¼" nails for thick butt strips. For reroofing over old wood shingles use 1¾" for both types. Nailing; thick-butts. Nail in double thick part of the shingle, 5½" in from the butt edge. Do not nail in thin part of shingle. Nail each shingle with six nails, one 1" from each end and one 1" on each side of each cut-out. Always nail from the center out.

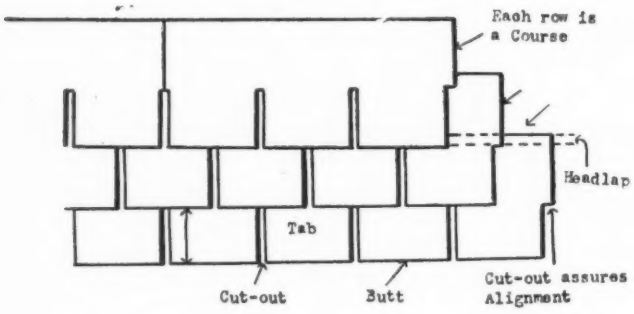
Hexagonal. Two-tab hexagonal strips are nailed with four nails per strip, 1" above the cut-outs. Nailing is started in the center of the strip with two nails above the center cut-out 1½" in from upper corners. This locates the nails approximately 5" apart. End nails are placed 1½" in from outside edges. Three-tab hex are nailed with four nails per strip, 1" above the center of cutouts; end nails are placed 1" in from outside edges.

Improperly built valleys cause the largest percentage of actual roof leaks. Faulty installation of flashing on dormers, around chimneys, and other broken up roof areas is another source of roofing complaints. Your manufacturer's data sheets give correct application directions in complete detail.

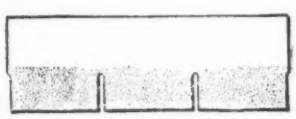
Preparation of old wood-shingle roofs: All decayed and missing shingles must be replaced and all loose shingles nailed. Curled shingles are secured by splitting the butt with a hatchet and nailing each corner.

It may be necessary to level out the roof deck by nailing a beveled wood strip (approximately 4" wide by ⅜" thick) over the old wood shingles. If desired, the old shingles at the eaves and gables may be cut back about 3", and ⅞" x 3" wood strips installed. This construction removes any indication that the new roof has been applied over existing wood shingles. A similar effect may be obtained by the use of a metal edge, which may be painted to match the trim color.

Common Asphalt Shingle Terms



NAME AND STYLE — COLOR AND TEXTURE



( ) 12" thick strip shingles

Length—36"; width—12"; exposure—5"; headlap—2"; tabs—3; shingles per square—80; bundles per square—3; weight 210 lb.; type material — standard with thick butts.

( ) **Smooth Surface**
( ) Spruce green
( ) Fieldstone green
( ) Black
( ) Tile red
( ) Red blend
( ) Green blend
( ) Varicolor slate blend
( ) Slate blend
( ) Blue blend
( ) Blue green blend
( ) **Textured Surface**
( ) Spruce green
( ) Green blend
( ) Blue blend
( ) Brown blend

( ) 11 1/3 standard—3 tab—hexagonal shingle

Length—36"; width 11⅓"; weight 167 lb.; exposure—4⅔"; headlap—2"; tabs—3; shingles per sq.—86; bundles per sq.—2; type material — standard with smooth or textured surface.

( ) **Smooth Surface**
( ) Spruce green
( ) Fieldstone green
( ) Tile red
( ) Black
( ) Green blend
( ) Red blend
( ) Blue blend
( ) **Textured Surface**
( ) Spruce green
( ) Green blend
( ) Red blend
( ) Brown blend
( ) Blue blend
( ) Blue green blend

Selling Points and Consumer Benefits

1. Durable—made of heavy felts impregnated with finest asphalt—mineral granules form a protective layer against action of the sun, rain and sleet.
2. Colorful—wide variety of beautiful colors to harmonize with every type of architecture—roof is architecturally correct and in best taste.
3. Economical—durable, colorful and practical roofing material at low cost.
4. Fire resistant—Underwriter's Class C label.
5. Easy to apply—self-aligning features—flexibility and easy cutting allows for reduced cost to home-owner and low maintenance costs.
6. Lower maintenance costs—no painting and recoating.
7. Added beauty in colorful roof.
8. A shingle to suit the particular needs of every customer.

Sell These Related Items

( ) **Nails**—New Work—Hexagonal strips—2 lb. 1" ⅞ head 11 gauge galvanized roofing nail.
Thick-butt strips—2 lb. 1¼" ⅞ head 11 gauge galvanized roofing nail.
Reroofing—Hexagonal strips and thick-butt strips—3 lb. 1¾" ⅞ head 11 gauge galvanized roofing nails.

( ) **Felt**—15 lb.—Under shingles. Add longer life to roof. Required on new FHA jobs.

( ) **1 x 3 white pine**—(reroofing jobs)—to even surface along eaves and gables so that the new roofing may be securely nailed and lay flat indefinitely.

( ) **Starter strip**—asphalt 9"—to start shingles along eaves.

( ) **Ridge roll**—metal or 9" asphalt starter strip—to cap the ridge.

( ) **Valley Flashing**—Asphalt—9" strip for lower strip and 18" for top strip. Metal—Main valley 16" wide; dormer valley 8" wide; front dormer 8"; where porch and roof connect 8"; where roof and shed dormer connect 10".

( ) **Asbestos roof putty**—shingles on edges of all valleys must be well bedded in asphalt roof putty.

( ) **Red Cedar Shingles**—under course at eaves required on all FHA jobs.

( ) **Chimney Flashings**—5 x 7 or 7 x 9 tin shingles.

( ) **Caulking compound**—to make water-tight edges of shingles laid along gable cornices.

Asphalt Roll Roofing

( ) **Roll (Ready-to-Lay) Roofing**—Made of felt, thoroughly impregnated with asphalt and then surfaced with another covering of asphalt, is particularly adapted to pitched roofs of factories, commercial buildings, garages, sheds, farm buildings, etc. Roll roofings are not suitable for use on flat surfaces, nor should they be used on roofs surrounded by parapet walls or other vertical surfaces where stoppage of leader outlets would result in water backing up and lying on roofs. Never lay these roofings on any surface other than those that will drain water freely at all times. It is manufactured in two general types—smooth black surface and mineral (slate) surface.

Smooth Surface Roofing

( ) Smooth surface is usually made in three grades and price ranges. Before the war forced simplification each grade was made in three weights—35 lb., 45 lb. and 55 lb. —and the quality grade was also made in 65 lb. The

Proof positive! Read what one big roofer says about TEXACO Solid Roofing Asphalt

Slate
Asbestos Siding
Asbestos Shingles
Asphalt Shingles
Roll Roofing
Tile

DAHM BROS. INC.
Roofing Experts
1600 S. Harrison St.
Phone H-3221
WHOLESALERS
RETAILERS
APPLICATORS
FORT WAYNE 6, INDIANA

Asphalt
Roof Coating
Plastic Cement
Attic Insulation
Weather Strips
Mop Yarn
Nails

June 12, 1946

The Texas Company
135 E. 42nd St.,
New York 17, N. Y.

Gentlemen:

I am sure that you will be interested in knowing of my gratifying experience with Texaco Solid Roofing Asphalt.

In 1928 my brother and I established our roofing application business here. From the Start we were determined to build our business on the quality of the roof jobs we applied in the Northern Indiana area. We were satisfied that our organization had the "know-how" to accomplish this objective if given the right materials.

Our search for materials led us to try some twelve different brands of roofing asphalt over a period of several years. All of them fell short of the high standards for uniformity, purity, and toughness we had hoped to find.

About nine years ago we bought our first car of Texaco Roofing Asphalt. It was exactly the product that we had in mind. Every car has been of the same high quality. Texaco asphalt mops on easily, but it leaves a uniform thick film of long-lasting roof protection behind the mop. The ease with which it spreads insures more uniform coverage and makes it go farther. Because of its adhesive quality your asphalt has eliminated the trouble we used to have with "fish-mouths". It leaves no open seams.

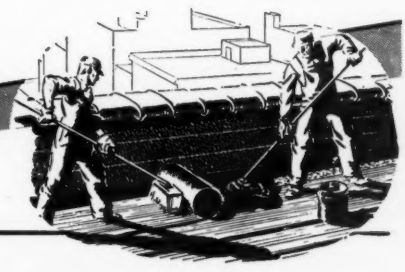
Then, too, Texaco is clean asphalt. With other brands we had to clean our kettles at least once a week and sometimes twice. With Texaco we have never found it necessary to clean them more often than every three weeks. That saves labor and material for us. It means that our customers are getting all asphalt without any foreign matter.

Since our initial purchase of Texaco Roofing Asphalt we have bought several cars a year using no other brands even though they were available at lower prices.

Yours very truly,
DAHM BROS., INC.
By: Burt V. Dahm

In 100-lb. Cartons and Paper Bags

***Now* AVAILABLE!**



TEXACO SOLID ROOFING ASPHALT
***Asphalt* SHINGLES and ROOFING**

weights denoted the weight of the roll. Years ago the different weights or thicknesses of the roofing were denoted as 1 ply or light, 2 ply or medium, 3 ply or heavy, and the 65 lb. roll as extra heavy. You will find some customers still using the old terms.

Roll roofings are packaged to cover a square. They contain 108 sq. ft. The 8 sq. ft. is to provide a two inch lap in laying. The roofing is usually 3 feet wide and 36 feet long. All rolls contain galvanized nails and lap cement.

Mineral Surface Roofing

( ) Mineral Surface Roofing or Slate Roofing, as it is sometimes called, is especially adapted where color is desired in the finished roof. It is smooth roofing with colored mineral granules securely embedded in the asphalt on the upper surface. It is usually manufactured in two shades of red and green and one shade of black. Its weight is 90 lbs. per roll.

The life of mineral surfaced roofing is usually from 10 to 15 years. The granules gradually wear off and, when they are gone, the felt dries, pits, and cracks. Then leaks start and the roofing must be replaced. However, smooth surfaced roofing can be resurfaced by brushing on a coat of roof coating which renews the wearing surface of the roofing. A good grade of smooth surface roofing, recoated every 3 or 4 years, will render good service for years. It is easily patched and repaired. For practical utility always recommend smooth surface roofing except where color is the prime requisite.

Mineral surfaced roofing is packaged the same as smooth surface roofing.

( ) Mineral Surface Starting Strips

Mineral Surfaced Roofing is also made in three widths, 9", 12" and 18" and packaged in rolls 36 feet long weighing 21, 28, and 42 pounds respectively. The 9" widths are used in starting shingle course (hence its name, Starter) and for covering hips and ridges. The 12" and 18" widths are used for lining valleys.

( ) Diamond Point Roofing

Diamond Point Roofing—Manufacturers split mineral surfaced roofings in any number of designs to sell as reroofing over old roofs. Each manufacturer calls it by a different name. Its chief recommendation is that it makes a cheap job. Do not sell it for new work, as it does its job only over old roofs.

Application

The application of roll roofing is as important as the material itself in determining satisfactory service. So read your manufacturer's application directions carefully and thoroughly.

Ready-to-lay roofing is usually applied directly over wood sheathing, which should be well-seasoned, closely nailed, preferably tongue and groove, and secured with at least two nails at each rafter. Any boards that warp or curl should be drawn down by renailing. Any loose nails should be redriven, knot holes or cracks covered with tin. The roof should be swept clean and cleared of all obstructions.

Roll roofing can be laid over old shingle roofs and old tin roofs, although manufacturers do not recommend their product for that use. Read their instructions carefully.

Select a warm, clear day, when the roof is dry. If possible roll out the roofing the night before and allow it to flatten itself.

Drive nails straight. Do not nail through a single sheet of roofing. Remove any nails that enter a joint or a knot hole and repair the hole in the roofing by inserting between the sheets in the lap a piece of roofing which has been coated with lap cement on both sides. Then, nail through the patch where the nails will get a firm hold.

Roofing is always laid so that the water runs over the laps—never against exposed edges. Horizontal laps should be sealed with lap cement and nailed ¾" from the edge. Vertical joints are lapped 4", thoroughly cemented and secured with two staggered rows of nails, spaced on 1" centers; the first row ¾" and the second 1¾" from the outer edge.

If roofing is used over old shingles, use 1½" nails so that the nails can hold in the old roof boards.

Your manufacturer's instructions will give you complete directions on preparing valleys, wall and chimney flashings.

Asphalt Roof Coating and Plastics

A good asphalt smooth surface roofing rarely wears out. It dries out. To assure long life roll roofing should be coated every three or four years. Asphalt roof coating gives old roof a new rubberlike top surface that covers and seals all pits and cracks. It penetrates and resaturates dried out felt, and composition roofings. It gives them new life. On metal roofs it seals small rust holes and stops further rusting.

Asphalt roof coating. A thick black compound made from liquid asphalt, tempered to spread evenly and smoothly at temperatures above 60 degrees. It is used for resurfacing roofs that are still in fair condition. It is used for cap-sheeting old roofs and for new built-up roofs. It may also be used as a foundation coating over cement walls.

Asphalt fibrated roof coating. To ordinary asphalt roof coating are added asbestos fibres to give it thickness and strength for recoating badly worn roof surfaces, which need an extra heavy coating.

Both types of roof coating are applied directly to the roof with a brush, broom or spreader and are brushed out one way into a heavy even coat. No heat is required. Before applying the coating the roof should be thoroughly cleaned. Cracks, breaks and bad seams should be patched. Renail where paper is loose. Roof coatings can be used on all types of roofs except wood shingles.

Covering capacity:

On metal roofs—per square—1 gallon.
Roofs in good condition—1 gallon per square.
On old composition roofs—1½ to 2 gallons per square.
On corrugated iron—1½ gallons per square.
On gravel roofs 3 to 5 gallons per square.

( ) Asphalt Cement or Lap Cement—The primary function of lap cement is to make a waterproof between the laps of roll roofing, to seal the edges and protect the nails. It is the contents of the little can that comes with every roll of roofing.

Plastic cement is a heavy blend of elastic asphalts containing preservative oils and asbestos fibres. It is used for flashings, for anchoring shingle tabs, for patching and repair work and many other purposes requiring a waterproof cement. It may be used for patching slate and metal roofs of all kinds as well as asphalt roofs. It is used for caulking boats, masonary foundation walls and coping.

WOOD SHINGLES

Sizes of Shingles

Most shingles are manufactured in random widths with 14 inches the maximum in all grades. Three standard lengths are recognized—16, 18 and 24 inches. Shingles are packed in bundles, four of which contain a sufficient number of shingles to cover an area of one hundred square feet when properly applied. A roof square consists of four bundles, but to cover a square on a side wall by single coursing, only three are required.

16 Inch Shingles—5 butts to 2 inches

No. 1—Represents the best grade manufactured in this length and are intended primarily for roof construction where the shingles should lie flat and tight, and where there must be complete protection from rain water driven by high winds. On steep roofs they can be expected to have a life of more than 35 years under average climatic conditions; on one-fourth pitch roofs a life of at least 25 years, and on side walls they have an indefinite life. These shingles are clear of knots and 100 percent vertical grain. They are the most popular type manufactured.

No. 2—Make good roofs for secondary buildings, as well as excellent side walls, and offer good service for overroofing over old wood shingles. Are 12" clear from the butt.

No. 3—Are suitable for uses where economy is the greatest factor, but when properly applied will give good service.

18 Inch Shingles—5 butt to 2¼ inches

No. 1—Are considerably thicker at the butt than 16-inch shingles, and are intended for use on the finest types of structures. With a long exposure and double-coursing with No. 2s or 3s of the same size, heavy shadow lines

NICHOLS *Aluminum* ROOFING MATERIALS

aluminum nails *with* GORA-LEE neoprene washers

Here is the latest and most efficient roofing nail and washer combination ever offered. NICHOLS ALUMINUM NAILS have all lubricant removed. Their entire surface is etched to provide a firm friction grip that causes the wood fibres to grip and hold the nail, when driven. No more slipping or "loosening up" after application. No rusting or electrolytic corrosion. Permanent Aluminum Nails for permanent aluminum roofs.

The war tested, nationally known GORA-LEE NEOPRENE WASHERS used with NICHOLS ALUMINUM NAILS are weatherproof and resilient for exposed service from 65° below to 250° above zero. They provide a cushion-like expansion joint that lessens the pull on the nail head, caused by air pressure in buildings of any kind. Note how Neoprene Washer tightly seals itself around nail opening in sectional drawing at right.

Nail Lengths	Size Head	Gauge	Nails per box	Washers per box	Boxes per ctn.	Weight per ctn.	Price
1¾"	7/16"	10	1050	1100	10	35 lbs.	Write your jobber or us direct
2"	7/16"	10	1050	1100	10	38.5 lbs.	

Also available in 50 lb. kegs for asphalt and other types of roofing—with or without washers in bulk.

One box will cover 10 squares of Aluminum Roofing.

Bear in mind that there are three times as many aluminum nails per pound as there are steel nails.

SECTION THROUGH ALUMINUM ROOFING NAIL SHOWING NEOPRENE WASHER SEAL

roofing accessories

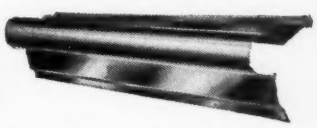
NICHOLS ALUMINUM ROOFING ACCESSORIES last for years because aluminum can't rust and can't rot. Requires no upkeep. Alert dealers will order an assorted stock today to meet the big warm weather building and remodeling program now under way.

CORRUGATED RIDGE ROLL

.019" thick. 1½" roll—8" girth. Covers one sheet width—24". Length 28" with either 1¼" or 2½" corrugations to match roofing sheet. Pkd. 100 pcs. per ctn.

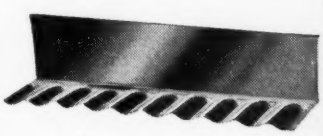
PLAIN RIDGE ROLL

.019" thick. 1½" roll—8" girth. Also 2" roll in 10" and 14" girth. All in 10 ft. lengths. Packed 150 ft. per carton.



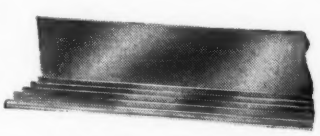
END WALL FLASHING

.019" thick, 10" girth, 28" length. Covers one sheet width—24". Available in 1¼" and 2½" corrugations to match roofing sheets. Pkd. 100 pcs. per carton.



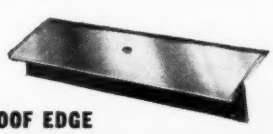
GAMBREL ROOF JOINT

.019" thick, 12" girth, 28" length. Covers one sheet width—24". Available in 1¼" and 2½" corrugations to match roofing sheet. Packed 100 pcs. per ctn.



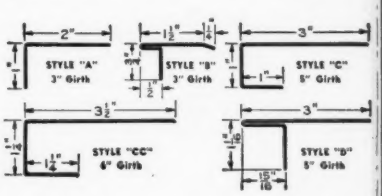
SIDE WALL FLASHING

0.19" thick, 10" girth, 10 ft. length. Available in 1¼" and 2½" corrugations to match roofing sheet. Packed 150 ft. per carton.



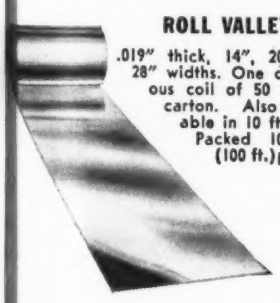
ROOF EDGE

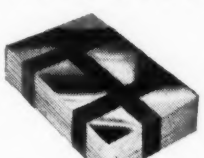
.019" thick, 10 ft. lengths in styles shown at right. Packed 250 ft. per ctn. Specify style wanted on your order.



ROLL VALLEY

.019" thick, 14", 20" and 28" widths. One continuous coil of 50 ft. per carton. Also available in 10 ft. lgths. Packed 10 coils (100 ft.) per ctn.



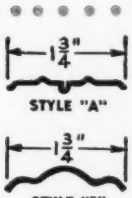


FLASHING SHINGLES

.019" thick. Available in 5" x 8" and 8" x 10" sizes. 5" x 8" packed 500 pcs. per ctn. 8" x 10" packed 250 pcs. per ctn.

BARN BATTEN

.019" thick, 8 and 10 ft. lengths, in styles shown at right. Packed 1000 ft. per carton. Specify style wanted on your order.



NO BROKEN PACKAGES AVAILABLE

NOTE — When Aluminum sheets or accessories are applied to raw mortar, cement or plaster, the concealed surfaces should be painted with asphalt paint.

NICHOLS WIRE AND STEEL CO.

Main Office: DAVENPORT, IOWA

Warehouses: Battle Creek, Mich. • Mason City, Iowa

ALUMINUM IS NOT A SUBSTITUTE!

almost half an inch deep are obtained, making possible beautiful architectural effects. All clear, edge grain and all heart wood.

No. 2—Are not intended primarily for roofs, but they will give excellent service on secondary buildings such as larger barns, implement sheds and other farm structures. They are excellent for use on side walls. Are clear of knots 12" from butt.

No. 3—Are ideal for under-coursing and represent an economy grade that can be used for side walls.

24 Inch Shingles—4 butt to 2 inch

No. 1—With these much wider exposures are permissible. With double-coursing, using No. 2s or 3s for the under coursing, shadow lines a full inch in depth are obtained. Entirely clear, edge-grain and all heart.

APPLICATION DETAILS

Since most roof leaks in good roofs originate at the valleys or flashings, too great emphasis cannot be placed upon the vital necessity of using good material at these points. Tin plate or terne plate rust rapidly, unless well protected with paint. Galvanized iron is satisfactory, but care should be exercised when making sharp bends as there is a tendency to crack the zinc coating. Sheet copper is normally very resistant to corrosion if it doesn't come into contact with iron, steel or zinc. It is regarded as one of the most satisfactory materials for flashings and valleys. Sheet lead is sometimes used and has proven very serviceable under ordinary conditions.

On roofs of one-half pitch or steeper, the valley sheets should extend up on each side of the center line for a distance of at least 7 inches, and on steeper roofs at least 10 inches.

Nails

Good nails of the proper gauge and length should always be used. Completely rust-proofed nails have been used extensively and are recommended when they can be obtained. Copper nails are very long lived, but bend readily and are therefore hard to drive. If these cannot be obtained, nails made rust resistant by dipping are emphatically recommended. 3d nails are used for 16- and 18-inch shingles in new roof construction and 4d nails for 24-inch shingles. For over-roofing 5d and 6d nails, respectively are used for those lengths.

Over-Roofing

The best and most practical method of re-roofing is to apply the new shingles directly over the old ones—a process known as Over-Roofing. In this way a double roof is obtained which tests have proven is actually stronger than the old single roof and which provides double insulation against heat or cold transmission. Over-Roofing assures protection of the contents of the building during application—sudden storms hold no menace. The customary muss or litter on lawns and shrubs is avoided.

There are just a few simple steps involved in Over-Roofing. First, cut away and remove the old shingles for 3 or 4 inches along the eaves and along the gable edges. The shingles thus removed should be replaced with strips of lumber nailed flush with the eaves and gable edges. These strips should be of the same thickness as the old roof. The old valleys should be partially filled with other lumber strips and new valley flashings laid down. Along each side of the ridges there should be nailed a strip of bevel siding, with the thin edge down.

When these steps have been taken, the new shingles should be applied just as on a new roof, using 5-penny nails for 16-inch and 18-inch shingles, and 6-penny nails for 24-inch shingles. If the sheathing boards under the old shingles are spaced apart, there is no necessity of making sure that the nails for the new shingles strike these boards because a sufficient number will reach the sheathing to hold the new roof firmly and securely in place. And when the job is completed, it will be next to impossible to discern whether it is a new roof or a repaired one.

Nails—Do not use bright or blue steel nails in applying wood shingles. Galvanized nails should be used and preferably hot-dipped zinc coated nails. A wood shingle lasts only as long as the nail that holds it in place.

CORRUGATED ASBESTOS CEMENT ROOFING AND SIDING

Corrugated asbestos cement sheets are made of the same materials as other asbestos cement products and possess the same natural properties that enable them to resist the action of the elements and other destructive forces. They are produced in corrugated form for additional strength and durability.

The corrugated sheets have a thickness of approximately 7/16-inch at ridge and valley of corrugations and approximately 5/16-inch on tangent an average thickness of ⅜-inch. Standard sheets are 42 inches wide and from 3 to 11 feet long.

This materal is designed for use as roofing, siding and partitioning, particularly over skeleton frame construction. It has been used extensively in the construction of large industrial buildings and farm structures.

Corrugated asbestos cement board is especially adapted to the building of one-story barns, now growing in favor as a result of recent developments in feeding and ensilage. For such construction, corrugated sheets are used over the entire exterior, roof and sidewalls. The interior lining may be of a similar material—the asbestos cement board previously described.

In the smaller types of farm buildings, corrugated asbestos cement frequently is used in combination with the flat asbestos board. In such cases the corrugated usually is used for roofing and the flat material for siding.

Corrugated asbestos sheets have been effectively used in the construction of hog houses, dairy barns, tobacco barns, corn cribs, machine sheds, and many other types of farm structures.

ALUMINUM AND STEEL ROOFING

Aluminum is now made into corrugated and V-crimped sheets similar to galvanized iron. It may be used for all types of farm and industrial uses for both siding and roofing. However, it should not be laid on roofs with a slope of less than 3 inches to the foot.

Both types are manufactured for a 24" coverage and in 6, 8, 10 and 12 foot lengths. Accessories consist of ridge roll, formed valley and 14" roll flashing.

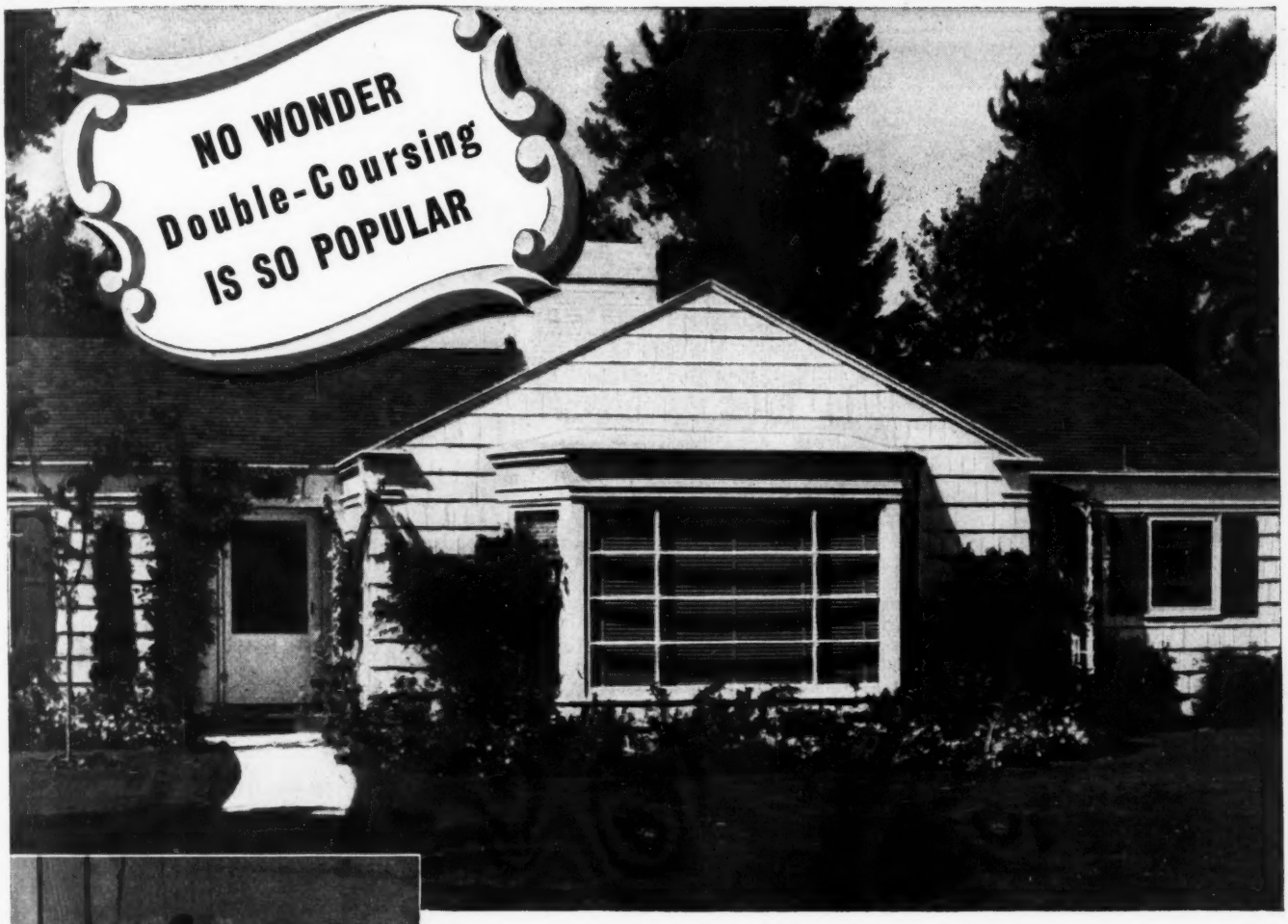
Steel and iron must not be allowed to contact the aluminum sheets at points where moisture may collect; or where poor sealing allows moisture to penetrate the roof; or where insufficient mechanical support or excessive loading may cause collapse. When aluminum and steel have moisture between them, a small electric current flows,

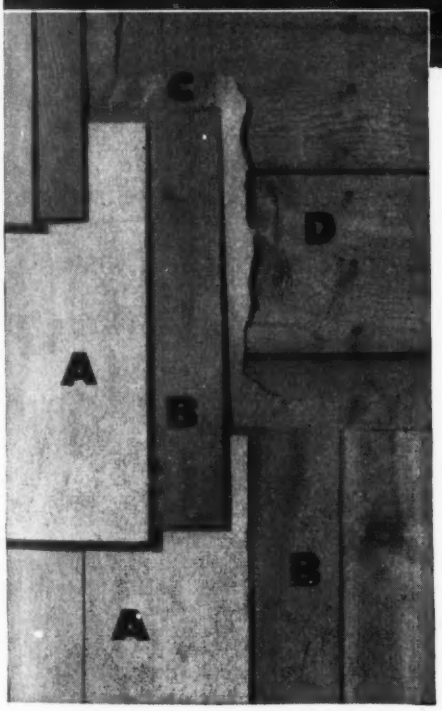
SHINGLES AND NAILS REQUIRED FOR ROOFS—NEW WORK (100 square feet roof area)

	Bundles	Size Nails	Pounds Required
16 inch shingles, 5 " exposure	4	3d (1¼" long)	3 lbs.
18 inch shingles, 5½" exposure	4	3d (1¼" long)	2½ lbs.
24 inch shingles, 7½" exposure	4	4d (1½" long)	2 lbs.

SHINGLES AND NAILS REQUIRED FOR OVER-ROOFING (100 square feet roof area)

	Bundles	Size Nails	Pounds Required
16 inch shingles, 5 " exposure	4	5d (1¾" long)	3⅓ lbs.
18 inch shingles, 5½" exposure	4	5d (1¾" long)	3 lbs.
24 inch shingles, 7½" exposure	4	6d (2 " long)	3⅓ lbs.





A. Outer course of No. 1 Certigrade Shingles.

B. Under course of lower grade shingles.

C. Building paper.

D. Solid or spaced sheathing.

Note: *Weather exposure—12" for 16" shingles and 14" for 18" shingles. Top course is laid ½" lower than under course. Use only two nails per shingle spaced 2" from butt and ¾" from edge. Under course may be stapled.*

The Opinion of a...

PROMINENT ARCHITECT

"Sidewalls of double-coursed cedar shingles are economical and long lasting. The maintenance cost is low, scale and proportions of the building are improved and a warm, tight, attractive job is assured."

William J. Bain, A.I.A., Architect

Undoubtedly double-coursing is one of the greatest developments in exterior home construction. It is surprisingly economical, due to the wide weather exposures and use of a lower grade shingle for the undercourse. Its architectural pattern is modern and attractive. It provides excellent insulation and assures a lifetime of sturdy, dependable service. *Send for free literature, including complete Double-Coursing Blueprint.*

RED CEDAR SHINGLE BUREAU

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CERTIGRADE
Red Cedar
SHINGLES
ON ALL GRADES
A LABEL SIMILAR TO THIS DESIGNATING GRADE AS NO. 1, NO. 2 OR NO. 3 IS ATTACHED TO ALL CERTIGRADE SHINGLES
RED CEDAR SHINGLE BUREAU

Red Cedar
SHINGLES

SOLD BY RETAIL LUMBER DEALERS

causing holes or pits in the aluminum with subsequent deterioration of the aluminum sheet. Any means of avoiding actual metal-to-metal contact at those points where moisture collects will protect against this action. This can be done by providing a protecting sleeve or saddle of aluminum to cover the steel at the point of contact; by the use of a non-conductor such as building paper; or by painting with aluminum paint which provides an aluminum-to-aluminum contact at the moisture collecting point between the roof and the support. Steel nails or ordinary galvanized roofing nails must not be used for nailing. Aluminum nails are best.

Because proper erection and installation methods are necessary to assure long life for aluminum siding and roofing, it is imperative that your manufacturer's directions be carefully studied.

ASBESTOS CEMENT SHINGLES

Asbestos cement shingles were introduced to meet a demand for a roof covering which would be both fireproof and durable. They are made of a combination of asbestos fibres and portland cement, formed under great hydraulic pressure. Asbestos shingles will last indefinitely unless broken by impact.

There are three distinct types of asbestos cement shingles. They are the American method, which when applied is similar in appearance to the conventional wood shingles; the hexagonal, and the Dutch lap. The hexagonal shingle also is known as the French method, while the Dutch lap is called the Scotch method by some manufacturers.

American Method

American method asbestos shingles are recommended for all residences, up to the finest; for churches and institutions, and for all structures where distinguished appearance and durability are requisites.

Originally, the American method asbestos shingle was a counterpart of a high grade wood shingle in size and was similarly tapered. Today practically all are manufactured in strips or panels. That is, they are in sizes equivalent to from two to five conventional shingles. When applied, however, they give the appearance of standard sized shingles individually laid. The strip shingles have two advantages; they are lighter in weight and they can be applied with considerably lower labor costs than single shingles.

American type asbestos shingles are offered in colors which harmonize with any natural surroundings. These include gray, blue black, red, green, blends and mottled. Some manufacturers have shingles which blend two or more colors. The exposed surfaces are textured to reproduce the appearance of authentic wood grains. The shingles may be obtained with either straight or staggered butts. Deep shadow lines are produced by the thickness of the shingles.

Most strip shingles are self-aligning, which simplifies application. Starters and ridge shingles are available from the manufacturers.

Dutch Lap

Dutch Lap asbestos cement shingles are recommended for buildings where the conventional rectangular appearance is desired yet economy in cost is an important consideration. They are larger in size than the conventional shingle and are lapped at top and side. This method of overlapping reduces the amount of material needed. The consequent saving in both shingles and labor makes possible a considerable saving in cost.

Most Dutch lap asbestos shingles are produced with textures simulating those of weather-aged woods. They have much of the charm and beauty of the straight line American method shingle, while the design effects economy in the cost of the finished roof. They, too, are made in a variety of colors, including green, red, blue and gray. Additional colors are offered by some manufacturers.

Dutch Lap shingles can be laid with either a one-fourth or a one-third side lap; the head lap is fixed at three inches. The one-fourth lap naturally requires fewer shingles and less work and is correspondingly less expensive. The third-lap makes a heavier and tighter roof.

Hexagonal

Hexagonal type shingles offer the builder the advantages of asbestos cement roofing at the lowest cost. They are nearly square in shape but when applied they present a hexagonal or honeycomb appearance. The design has enjoyed widespread popularity for many years. It requires a minimum of material for overlapping. Hexagonal asbestos shingles are completely weatherproof when properly applied. At the same time they effect maximum savings in labor and material and consequently make a finished, enduring, fireproof roof at low cost.

Asbestos shingles of the hexagonal type usually are smooth surfaced. They are made in a variety of colors. The most popular again are gray, blue, green, red and mottled.

Hexagonal type shingles combine attractive appearance, durability and economy. They are favored for farm buildings of all kinds, for homes of low and moderate cost and for a wide variety of miscellaneous structures which need inexpensive, maintenance free roof protection.

Advantages of Asbestos Shingles

The principal selling points for all three types of asbestos cement shingles are their permanence, fire protection and freedom from maintenance expense. In addition, they have other characteristics which are attractive to discerning builders.

Fire Protection

Asbestos cement shingles are absolutely fireproof. They contain nothing that will burn. This means lasting protection against the menace of roof-communicated fires.

Permanence

Made of two practically imperishable materials, asbestos and cement, asbestos shingles are immune to rot and decay. They are unaffected by ice, snow, rain or exposure to salt air. They can be expected to last as long as the building to which they are applied.

Low Maintenance Cost

Since asbestos shingles are not affected by any of the usual causes of wear, they do not have to be replaced. That means there are no expensive repairs nor any periodic upkeep expense.

Beauty

The thick butts of asbestos shingles provide clean-cut shadow lines that give the roof interest and charm. The texture and grain of fine weathered wood is reproduced in the surface treatment. In addition, the attractiveness of the shingles is enhanced by a variety of colors, ranging from rich reds and striking greens to cool grays and whites.

Economy

The true measure of economy in asbestos shingles is to be found in the low cost per year of service. Since they will last as long as the building stands with little likelihood of any maintenance expense, they are one of the most economical of roofing materials which can be used on a permanent building.

Market for Asbestos Shingles

Asbestos shingles are recommended for homes in all price ranges. They are particularly well suited for coastal areas, where salt laden moisture is damaging to many materials, and to southern and western homes which are exposed to extensive periods of intense sunshine. Neither salt air nor intense heat has any deteriorating effect on asbestos cement. Asbestos shingles also are a favored roofing material for farm dwellings and service buildings. The attractive, substantial appearance of asbestos shingles and their durability recommend them for use on schools, churches, auditoriums and similar structures where roof areas are large and low upkeep is an important factor.

Asbestos shingles are equally adapted for use on new buildings or for application over old roofs. Usually the new shingles can be applied right over the old roof, thus saving the cost of removing the old shingles and giving the roof the added insulation value of the old roofing.

Suggested Stock

In recent years asbestos cement shingles have been in short supply. While the situation has improved considerably, it may be some time before the dealer can maintain an adequate inventory. In normal times, however, a lumber yard of average size could well carry in stock

about a half a carload of asbestos shingles. The major portion of them probably would be low cost American method shingles.

Sold by Square

Asbestos cement shingles are sold by the square, which means sufficient shingles to cover 100 square feet of surface when applied according to the manufacturer's directions.

Asbestos Shingle Accessories

Eave Starters, Ridge and Hip Shingles, Ridge Rolls

These items are made especially to simplify the application of asbestos cement shingles. They are purchased separately.

Roofing Felts

Felts saturated with asphalt or tar are used to cover new roof decks before asbestos shingles are laid. The asphalt-saturated felt comes in a three-square roll; tar-saturated in four-square rolls. Both are 32 inches wide.

Nails

Galvanized needle-point nails are recommended. For new roofs use 1¼-inch nails. When reroofing over old shingles use 2-inch nails.

Asbestos Shingle Cutter

Dealers handling asbestos cement shingles should have several shingle cutters on hand for the use of customers. They cut the shingles quickly, accurately and neatly. They also have a punch for punching nail holes wherever necessary. These cutters can be used right on the roof.

Ripper

Rippers are simple tools which may be used occasionally for removing a shingle that may accidentally be broken during application and discovered after work has passed that point.

Storage

While still packed in bundles, whether in the yard or on the job, asbestos shingles should be kept absolutely dry. Moisture trapped between bundled shingles may cause discoloration due to efflorescence, or what ordinarily is known as blooming. Keep the bundles in a dry place, or if it is necessary to pile them outdoors, stock them on planks to keep them off the ground and cover them with roofing paper or a tarpaulin.

Application

General Precautions

Asbestos shingles should not be applied on a wet or damp roof deck. When a job is left partially completed, felt should be laid over the upper applied course of shingles to prevent rain from running down underneath the shingles.

Lay shingles in dry weather. Ventilate new buildings while plaster is drying by opening windows in basement or first floor and attic. This removes damp air which might cause roof boards to swell or warp.

Extra care should be taken in extreme winter weather at lower portions of roofs against leaks caused by ice and snow "backing up" from gutters.

New Work

It is important the roof deck be in proper condition to receive the shingles. The lumber should be well seasoned, dry and of uniform thickness. Tongued and grooved boards of narrow width are best. Roof boards on new jobs must be laid close together. Nail heads must be driven down and any high spots or edges drawn down. All rubbish, nails, chips, etc., should be removed before application is started. A wood cant strip should be applied along the eaves, flush with the lower edge, to give proper pitch for the shingles. Wood lath or beveled siding is recommended.

For treatment at hips and ridges, hip and ridge shingles are recommended. They are cut to a flair or taper and make a more waterproof, more attractive and less expensive job.

Nail a furring strip along each side of hips and ridges, butting the strips at the apex of the ridge, in order to provide a nailing base for the hip and ridge covering. The roof shingles are butted against these furring strips, therefore they must be as thick as the shingles at that point and need not be over two inches wide, so they will be covered by the ridge covering.

On new jobs or on re-roofing jobs where the old roofing has been removed and sheathing made solid, the roof boards should be covered with one course of waterproof sheathing paper. Horizontal laps shall be four inches, and at hips, ridges and valleys felt shall be lapped 12 inches so double thickness will be insured at these points.

When cutting asbestos shingles, it is recommended an asbestos shingle cutter be used. These cutters can be taken up on the roof and have attachments for punching additional holes and notching. If a cutter is not available, asbestos shingles are easily cut by hand. Use an old chisel, a cold punch, or the blade of the hatchet. Score the shingle with the tool along a straight edge along the line to be cut. After scoring place the shingle over a solid piece of wood and bend along scored line.

Asbestos shingles can be sawed with a coarse toothed saw.

Irregular cuts or round holes are made by punching holes along the line of the cut and breaking out the piece which is to be discarded. There is a punch on the shingle cutter for punching additional holes, or they may be drilled or punched with a nail set or other suitable pointed tool.

Do not nail cleats to the finished surface of an asbestos

(Continued on Page 228)

ASBESTOS SHINGLES—Types and Sizes

Type	Size	Weather Exposure	Headlap	Sidelap	Weight (Lbs. per square)	Shingles per square
AMERICAN METHOD	(Made in strips—variable with manufacturers)					
HEXAGONAL	16"x16"	13"x13"	3"	3"	240-260	86
DUTCH LAP	16"x16"	(¼-lap) 13"x12"	(¼-lap) 3"	(¼-lap) 4"	265-290	92
		(1/3-lap) 13"x10¾" 3"	(1/3-lap) 3"	(1/3-lap) 5-1/3"	345-370	104

Note: All types made in gray, blue-black, red and green by most manufacturers. Hexagonal made with smooth surfaces; others usually with good grain texture.

CELOTEX for 27 years

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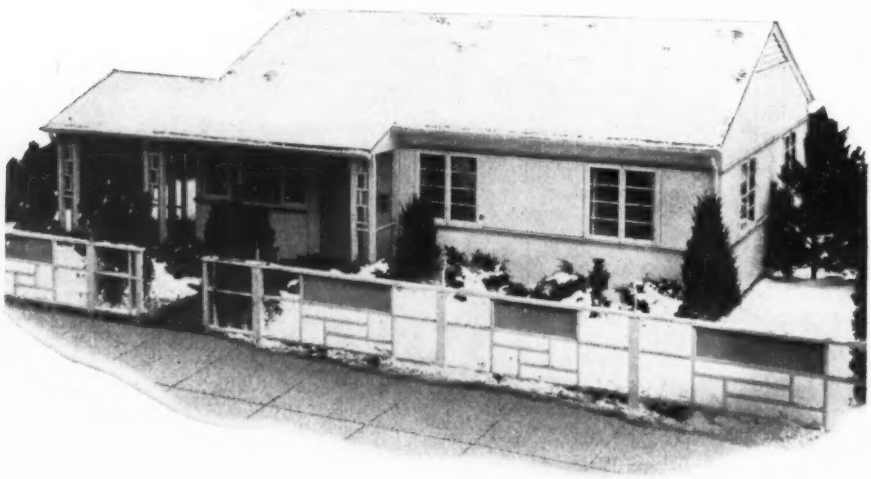


Celotex Cemesto Pre-Engineered House

F. H. A. approved—outstanding in value

In the *Horizontal Rail type* of construction, the CEMESTO is delivered pre-cut and edge-sealed. Millwork framing which is pre-cut for the entire wall construction, including assembled window and door units, is delivered to the site or to your yard. Roof trusses, roofing, flooring, and foundation, as well as the utilities, are furnished by you. In the *Post and Girder type* of construction only the CEMESTO is furnished pre-cut. Lumber and millwork are furnished and processed by you. Complete plans and specifications of both types of houses are furnished to aid the lumber dealer in setting up his CEMESTO Home Building Department.

Celotex Sheathing **now available in 25/32" thickness**

Long considered "standard" sheathing by better builders, Celotex Sheathing builds better, stronger, more rigid walls that are windtight and insulating. Surfaces and edges asphalt coated for moisture resistance—resists rodents and vermin—Ferox treated against fungus, dry rot, termites. Increased production makes Celotex Sheathing available in limited quantities.

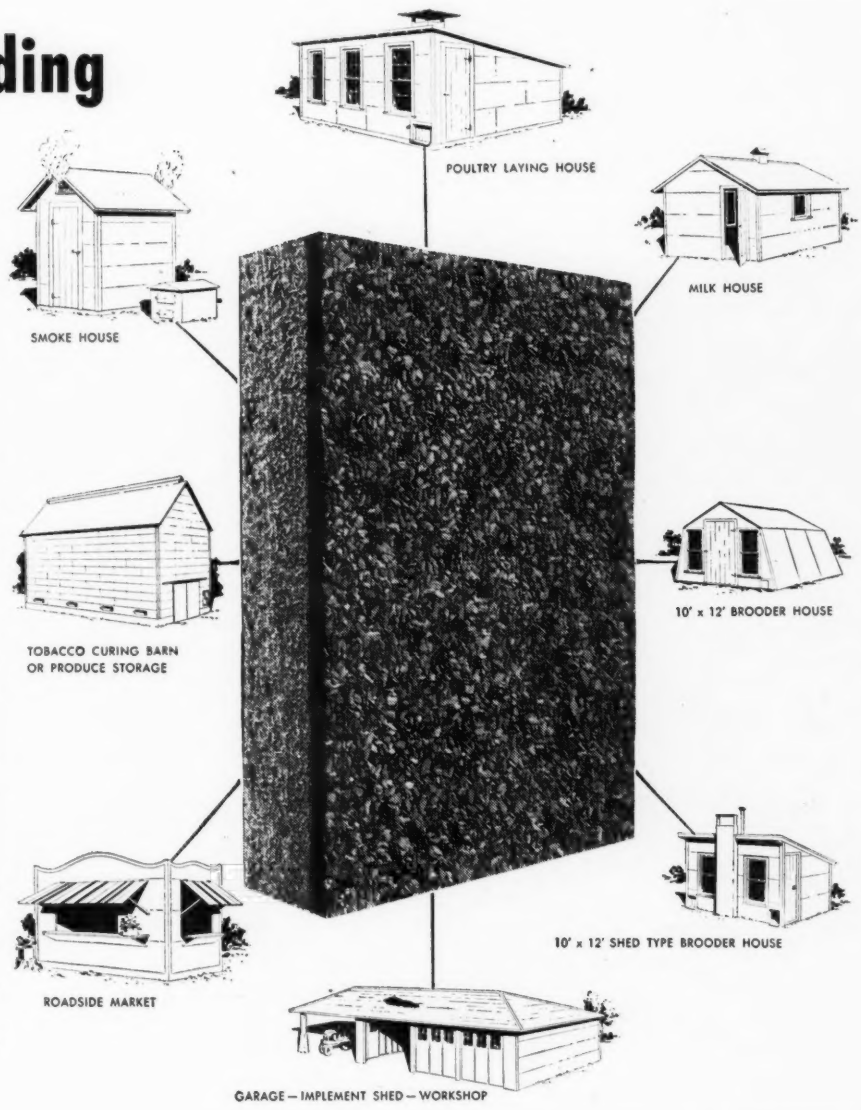
Other Celotex products are: **Building Board • Interior Finish Board • Rock Wool Batt Insulation**
Celo-Rok Wallboards • Celo-Rok Anchor Lath and Plaster • Triple-Sealed Shingles

a leader in the building industry

Celotex Celo-Siding

for new or repair jobs

Celo-Siding is a superior, multiple-function material especially adapted to building insulated utility buildings. Provides insulation, structural strength, sheathing and exterior finish... all in one application. Core is genuine Celotex cane fibre board—Ferox treated to resist termites, dry rot, fungus. All sides and edges sealed against moisture by coating of asphalt, extra thick on outside, and surfaced with durable, colorful finish of firmly imbedded mineral granules that never needs painting. Easy to handle, cut and apply. Economical first cost — no maintenance required.



Celotex Flexcell Expansion Joint

will not extrude under compression

Many engineers specify Celotex Flexcell Bituminous Fibre Expansion Joint for concrete jobs because it will not extrude under compression—adheres to concrete—re-expands after compression, preventing open joint crevices—is economical in first cost—reduces maintenance cost—is easily handled, readily cut with ordinary hand or power saw. Stock Flexcell—show it to every cement customer—it's easy to sell!

THE CELOTEX CORPORATION • CHICAGO 3, ILLINOIS

(Continued from Page 225)

roof. Exposed nail holes cause trouble and must not be permitted.

Care should be exercised to make sure valley flashings are of a width or height sufficient to meet the conditions encountered. The metal used must be the most durable and one which will meet the conditions in the locality in which the job is located. Open type valleys are most generally used. The edges of the metal should be turned ½ inch, thus forming a hem or water seal. The valley metal should be attached to the deck with cleats at the hem. Avoid driving nails through the metal and be sure it extends well up under the shingles on both sides. Edges of metal flashings and flanges also should be hemmed. Bed shingles in a layer of plastic asphalt cement when they lay over metal flashings.

Re-roofing Over Old Shingles

Two inch long galvanized needle point nails should be used when re-roofing over old shingles. Nail down all old shingles which are badly curled or warped. Waterproof felt generally is not required under asbestos shingles when they are laid over old wood or asbestos shingles unless the old roof is in bad condition. Missing or badly decayed wood shingles should be renewed and the surface brought to an even plane. Wood strips, beveled and equal in width to the butts of the old wood shingles are very satisfactory. If the top edges or corners of the asbestos shingles do not rest on the butts of the old shingles tilting will result. Nail wood lath or beveled siding of proper thickness against the butts of the old wood shingles to correct the condition. When this condition is encountered it will follow the course the full width of the roof.

Remove old boards used for finishing the hips. In their place nail securely new two-inch wood strips of the proper thickness, beveled as required to meet the condition, and nail to them the hip and ridge shingles.

Sometimes at the edge of the roof the old wood shingles are found to be in bad condition and the sheathing is not in very good shape. A substantial and more attractive job can be had by cutting away the old shingles and laying a new board four to six inches wide by ⅞-inch thick along the edges. This gives a solid base to which the new shingles will be nailed.

Build up old valleys with wood strips of a width and thickness adequate to bring them flush with the butts of the old wood shingles. Lay waterproof asbestos felt over hips, ridges and at valleys.

WOOD SIDING

Wood siding is one of the oldest and most popular of side-wall coverings. It is economical to apply, adapts itself to almost any type of architecture, combines structural strength with insulation qualities, is easy to apply and remodels easily, and gives a wide latitude in the selection of surface and trim colors.

Siding is made from those soft woods that stand up under the conditions of outside exposure. Red Cedar, Cypress, White Pine and Redwood make good sidings. Fir and Yellow Pine are also used to make drop siding.

Bevel Siding, or Lap Siding as it is sometimes called, is the most popular type of siding used in house construction. Standard widths are 4, 5, 6, 8, 10 and 12 inches. The 8 inches and wider is often called "bungalow" or wide Colonial siding. Bevel siding is manufactured by "resawing" dry, square-edged surfaced boards diagonally to produce two wedge-shaped pieces. The pieces are usually 3/16 inch on the thin edge and ½ to ¾ inch thick on the other edge, depending on the width of the siding. This method of manufacture gives one planed face suitable for painting and a sawed face which is rough and may be stained for effect.

Clapboards are square-edged boards lapped like bevel siding.

Drop siding and Rustic siding are usually ¾ inch thick and 6 inches wide. They are machined to a wide variety of patterns. Drop siding has tongue and groove joints while rustic has shiplapped joints. Drop siding is heavier, has more structural strength, and because of its design has tighter joints. For this reason it is most frequently employed on farm buildings, garages and other buildings where it is employed without sub-sheathing or wood and is nailed directly to the wood building.

Vertical Siding usually consists of matched boards 8, 10 or 12 inches wide, or of random width, the joints of which may be shiplapped and moulded, matched with V joint or covered with battens.

Flush siding is dressed and matched boards laid "flush" against the sheathing.

Various types of unusual siding are made to secure special effects. One of the most common is thick siding made to give the appearance of logs.

Siding should be delivered to the building jobs as close to the time when it will be installed as possible. The lumber sheathing to which it is to be attached should be dry.

Bevel siding should be lapped according to width. For 4-inch siding a ¾-inch lap is suggested while that recommended for 10-inch is 1½-inch.

End joints in adjacent courses of siding should be staggered. They should be accurately cut and run vertically. In some cases the butt ends are cut on a bevel so the faces slightly overlap. With narrow siding the courses can be so arranged that the edges coincide with the bottoms of window sills and the tops of drip caps at window and door heads. Corners should be carefully mitered unless there is a vertical piece of trim at corners called corner boards against which the ends of the siding can be butted. To look well and keep out moisture mitred corners must fit closely and stay in place. Open mitres are nearly always the result of using siding which has not been properly seasoned or has been exposed to moisture after delivery to the job.

Corner Boards, sometimes used with bevel siding and very commonly with drop siding, should be thicker than the siding and should lie flat against the building paper with siding butting up to them. One piece should be wider than the other by the thickness of the piece so they will have the appearance of the same width when in place on the building. Corner boards should not be nailed on over the top of the siding. This produces pockets which permit the entry of water back of the boards.

When the siding is applied directly to the studs or not over wood sheathing, the corner boards must be narrow enough to permit the ends of the siding should then occur over the studs.

When wood sheathing is used, it is not necessary to cut the siding to exact lengths to reach a stud or framing member; the joints can occur anywhere on the wall face as the siding can be nailed directly to the sheathing, although additional security is realized when the joints occur over the studs and are nailed through the sheathing into them.

Nails cost little compared with the cost of siding, shingles and labor. Siding which will last for generations should be applied with nails which will last. Copper or zinc coated nails will hold the siding permanently. They are a good investment.

For ½ inch bevel siding 6d nails (six penny) are used and 8d for ¾ inch siding.

TERMS COMMONLY USED IN SIDING CONSTRUCTION

1. Gable—2. Louver—3. Sill—4. Flashing—5. Oriel (Bay) —6. Dormer—7. Cornice—8. Sheathing—9. Filler Strips

CREO-DIPT

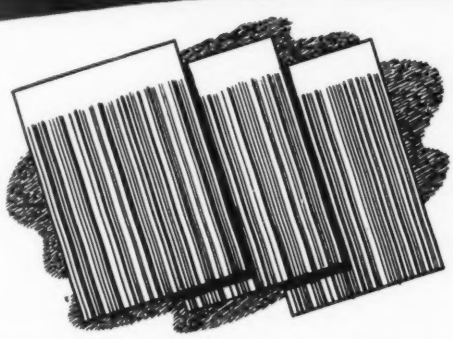
Pre-Stained DOUBLE WALL

Zephyrs*

and LINSEED OIL-BASE

SHINGLE STAINS mean...

More profitable business for you!



These shingles illustrate the vertical scoring of double wall Zephyrs and Scored Shakes.

* Creo-Dipt double wall Zephyrs — deep textured red cedar shingles backed by a wall of moisture resistant Zephyr Insulation Board.

Also the Double Coursing Method — Scored Shakes with red cedar shingle backing.

Creo-Dipt regular, pre-stained red cedar shingles (16"—18"—24") for roofs and sidewalls are available.

Through home and housekeeping advertising . . . through trade journal publicity . . . through direct mail and consumer literature . . .

Creo-Dipt has been creating a greater public appreciation of the beauty, durability, and true economy of

Creo-Dipt Shingle stains . . .

In your association with Creo-Dipt, you become a partner in the goodwill of the company, the quality reputation earned by its products since 1909 — ever since Creo-Dipt created the first pre-stained shingle.

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+ *"PLUS" values only CREO-DIPT gives you*

+ A World of Color
+ The New Beauty of "CREO-DIPT'S Outside Look"
+ The Durability, Insulation, Application, Architectural Fit and Economy of CREO-DIPT Red Cedar Shingles
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Established 1909
NORTH TONAWANDA, N. Y.
Central Office and Eastern Plant
CREO-DIPT of CANADA, LTD., VANCOUVER, B. C.

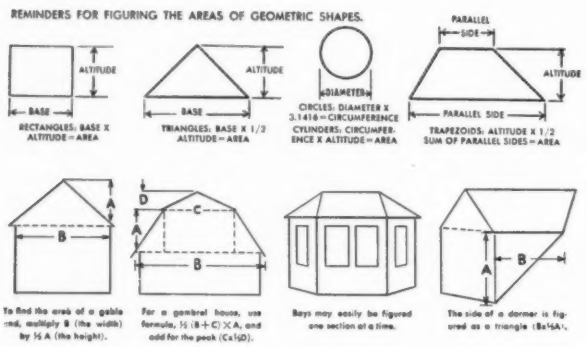
Roofing, Shingles, Siding

Sheathing Paper

In wood sheathed construction, building paper is laid horizontally between the sheathing and siding. If walls are of a single thickness of wood (walls without wood sheathing such as used for farm and work buildings) building paper should be placed between the siding and the studs. In this case the paper is usually run vertically for the full height of the wall. Paper should be water repellant, but not a vapor barrier type. This prevents air infiltration but doesn't trap vapor pressure which may cause condensation. Thus the building is permitted to "breathe" and keep dry. In some extremely humid climates, building paper is not recommended.

How to Estimate Siding Areas

Most siding areas are either rectangles or triangles or combinations of both. The only exceptions are buildings with Gothic or curved roofs, and silos, cupolas and towers.


REMINDERS FOR FIGURING THE AREAS OF GEOMETRIC SHAPES.
ALTITUDE
BASE
RECTANGLES: BASE X ALTITUDE = AREA
TRIANGLES: BASE X 1/2 ALTITUDE = AREA
DIAMETER
CIRCLES: DIAMETER X 3.1416 = CIRCUMFERENCE
CYLINDERS: CIRCUMFERENCE X ALTITUDE = AREA
PARALLEL SIDE
TRAPEZOIDS: ALTITUDE X 1/2 SUM OF PARALLEL SIDES = AREA
To find the area of a gable end, multiply B (the width) by ½ A (the height).
For a gambrel house, use formula, ½ (B+C) X A, and add for the peak (C x D).
Bays may easily be figured one section at a time.
The side of a dormer is figured as a triangle (B x ½A).

ALUMINUM SIDING

Due to the shortage of conventional siding materials, aluminum sidings are in wide use today. The most popular type is clapboard siding which is laid with an exposed surface of 8 inches and is manufactured in 8 and 12 foot lengths. Its gauge is .032.

Many advantages are claimed for aluminum siding. It will not check, crack, or split. There are no exposed nail holes to putty. It is not necessary to prime or paint to protect the surface except in the tidewater or salt air sections. Expansion and shrinkage are said to be not existant. Either painted or unpainted the inside aluminum surface provides efficient insulation.

Metal siding can be applied over any surface where wood, asbestos, asphalt, brick or any other facing material is applied. Application is sufficiently easy that anyone without experience can apply aluminum siding. The only tools needed are a hammer, tin shears, a hack saw or a similar saw.

On new construction sheathing may be eliminated. This speeds construction and affords a substantial saving in cost. Studding should be fully corner-braced in accordance with FHA minimum standards. A blanket insulation should be installed between the studs with the tabs stapled on the outside. The aluminum siding is then applied directly to the studs without sheathing. Inside wall board insulation or plaster can then be handled in the customary way. Good practice includes a vapor barrier on the inside wall construction.

Do not use ordinary steel nails. Nor should ordinary galvanized roofing nails be used as the plated coating tends to chip off.

Aluminum nails are best for aluminum building products. Lead headed hot dipped zinc coated needle point nails are strongly recommended for use in rural areas. In industrial and seacoast regions the lead headed nail is not recommended, but the use of a chromate impregnated tape washer or neoprene washer is highly recommended. Nails should be spaced approximately 16 inches on center. Nails 1 inch long will suffice for almost all applications. Accessories required for use with aluminum siding are the starter strip, butt joint and special corner finishing caps.

Consumer satisfaction with aluminum siding depends upon proper application and erection methods. Be sure to read your manufacture's application directions carefully. The main points are: the starter strip is nailed to the lower edge of the sheathing or to the bottom plate, providing a groove for the bottom flange of the first clapboard. Top edge of this clapboard is then nailed into place. Lower flange of the second clapboard fits into the top groove of the first, hiding the nails—and the procedure continues. End laps are covered with a butt joint which holds closely to the outside of the clapboards so that it provides a good weather seal. Finishing caps are supplied for both inside and outside corners.

ASPHALT BRICK SIDING

Within the last few years some roofing manufacturers have been making an imitation of brick in roll form. It gives the effect of "wire cut" and standard brick laid up in combination, with sharply defined black "mortar joints" between the bricks. It is easy to apply. Beyond the fact that it does improve the appearance of delapidated buildings at low initial cost, it has little to recommend it.

Asphalt Insulated Brick Siding—The most recent development is insulated brick siding in brick and stone design. It is made on a base of ½ inch insulation board and has a surface of asphalt and mineral granules similar to that on asphalt shingles. It provides insulation against heat and cold as well as protection against fire and water. Complete directions for applying are contained in each bundle.

Roll Roofing—Even roll roofing—smooth and mineral surfaced—is sometimes used as a wall covering where economy is a prime factor.

ASBESTOS CEMENT SIDING

Asbestos cement siding is a long lasting exterior sidewall covering for either new or old homes. Made of like materials, it has the same fundamental characteristics as asbestos roofing shingles. It is produced, however, in shapes, colors and surface textures particularly designed to give attractive appearance to exterior walls.

This product offers unique freedom from maintenance expense. Since siding is exposed to the full brunt of the weather its upkeep ordinarily is one of the major items of home upkeep. Asbestos siding is manufactured of two almost imperishable materials, portland cement and asbestos fibres, and is rocklike in performance. It will last indefinitely without requiring periodic surface coatings for preservation. Because of its inorganic nature it contains nothing that will burn or decay.

In general, asbestos siding is divided into two groups: one textured to reproduce the grain of weather-aged wood, and the other having smooth surfaces. The latter kinds sometimes are made with colored mineral granules pressed into their surfaces.

Asbestos sidings may be obtained with straight butt lines, with a staggered butt line reproducing the effect of shingles applied in the "thatch" method, or with wavy lines. Each produces distinctive and interesting shadow lines. The variety permits the selection of a siding appropriate to the character and surroundings of any building.

Types and Sizes

Sizes

Most asbestos siding is made in shingles 24 inches wide and 12 inches deep. They are lapped 1½ inches at the head, giving an exposed surface of 10½ by 24 inches. In addition, clapboards of greater width and sometimes shorter depth are made by some companies.

Styles

Siding of asbestos cement is produced in the following styles, although each style is not made by all manufacturers:

Wood-grain texture with straight edges.
Wood-grain texture with wave-line butt.
Wood-grain texture with staggered butts.
Tapered line texture with straight edges.
Smooth surface with wave-line butts.
Smooth surface with straight edges.

Textured asbestos siding is commonly made in gray and white. It is sometimes available in green and buff pastel

colors. Smooth surfaced siding usually is made in gray and white. It also is produced in blended tones created by pressing mineral granules into the surfaces.

Advantages of Asbestos Siding

Asbestos cement siding was introduced to meet a demand for a durable, fireproof exterior wall covering which would need little or no maintenance. Its selling points include:

Durability

Rocklike in composition, asbestos siding is not affected by weather or other common causes of wear. It will last as long as the building to which it is applied, without curling or warping.

Fire Protection

Asbestos siding is completely non-combustible. It reduces external fire hazards to a minimum, especially when applied to a building with fireproof roofing.

Low Maintenance

Some materials exposed to the weather require painting or other preservative treatment every few years. During the lifetime of a building this maintenance may add up to a considerable sum—often many times the first cost of the siding. Asbestos siding does not require preservative attention of any kind. It becomes harder and tougher with age and exposure. Maintenance costs therefore are a very minor consideration.

Attractive Appearance

Asbestos siding is attractively styled. Textures and colors suitable for various types of architecture are available. Applied over worn sidewalls it gives modern charm and beauty to buildings formerly drab and unsightly.

Termite and Rodent Protection

There is no organic matter in asbestos siding, so termites leave it alone. Rats, mice and other rodents will not gnaw through asbestos cement, so they are no menace to this type of siding.

Economical in Cost

Asbestos siding is economical in price and inexpensive to apply. The savings they effect in maintenance quickly repay their cost.

Market for Asbestos Siding

Asbestos siding earned its early reputation as a material for remodeling deteriorated old buildings into modern homes. In recent years there has been a growing trend toward the use of asbestos siding on new homes. It is well adapted to that use, as it can be applied right over the sheathing. This trend has been particularly noticeable in areas where climatic conditions are harmful to the siding materials ordinarily used in residential construction. The modernization field, however, will continue to offer a tremendous market for the product. More homes than ever are in need of such treatment as a result of wartime neglect. Asbestos siding is especially recommended for old and new buildings on farms, where the protection against fire and weather offered by asbestos siding is badly needed. In addition to the residential field, there are unlimited opportunities for the sale of asbestos siding for modernizing stores, improving commercial and industrial building, residing churches and remodeling schools and institutions. While fire protection is an important consideration, freedom from maintenance expense is probably the point that appeals to the greatest number of purchasers.

How Asbestos Siding Is Sold

Asbestos siding is sold by the square (sufficient shingles to cover 100 square feet of space when applied in accordance with manufacturer's directions). Backer strips to be used behind the vertical joints are included. Special rustproof face nails are provided by the manufacturer. Headlap nails must be supplied by the user.

Storage

Asbestos roofing shingles should be stored carefully, on edge, in a dry place or on planks at least four inches off the ground and covered with waterproof paper or a tarpaulin to fully protect them from moisture and dampness.

Application

Asbestos siding shingles should be handled carefully and kept in a dry place. Shingles on the job should be kept stacked on edge, on planks at least 4 inches from the ground, not more than four tiers high. They should be covered with waterproof paper or tarpaulin to protect them fully from any moisture or dampness.

Water running over unprotected wood sheathing, wood trim, wood gutters, and then over asbestos siding shingles may stain the shingles. To minimize such a possibility, shingles should be laid in dry weather and a given wall area—from base to top—completed as quickly as possible. Wood trim should be given at least a prime coat of paint. Gutters or eaves should be in place. Nails, brackets, etc., which are liable to rust should be painted or otherwise protected to avoid staining from this source. Copper gutters and leaders, flashings, fly screens, and similar accessories, which may also be the source of stains, should be periodically coated with dilute spar varnish.

Remember that siding shingles are for vertical walls **only.** They are not designed for roof surfaces.

A layer of waterproof felt or waterproof backing board should be applied to the area to be sided before the asbestos siding is put on.

Joints are protected by the use of felt backer strips, furnished with each square of shingles. When re-siding, 1 lb. of 2" galvanized needle-point nails per square are required; over new work, ¾ lb. of 1¼" nails.

Asbestos caulking putty should be applied, before asbestos shingles are placed, at all mitered corners and wherever the shingles butt against wooden trim, masonry or other materials. Care should be taken in applying the putty to avoid smearing the face of the shingles.

In using a shingle cutter on a job, waste is avoided and a more efficient job is possible if the cutter is tested before starting. Cut a shingle in half lengthwise and examine both pieces for cracks. If cracks are found, a little more opening is required between the knives. When cutting requires too much pressure, the knife edges should be slightly closer.

In re-siding work, the existing wall surfaces should be as smooth, plumb and true as possible. All loose shingles, clapboards, etc., should be securely nailed. Beveled wood strips, commonly called "horsefeathers", are obtainable—and these can be applied to even up the wall surfaces.

When existing siding has thick butts, it may be necessary to apply two layers of beveled strips at some course lines to provide a solid bearing. Lap the ends of beveled strips at building corners.

When stucco walls are in good condition, asbestos cement shingles can be put on over the stucco by first applying wood nailing strips. If the stucco is not in good condition it should be removed—also all nails, wires or other projections—and the sheathing covered with asbestos asphalt felt or saturated rag felt.

Where the use of asbestos siding shingles over old sidings brings the finished wall surface out beyond existing window and door frames, new staff moulding should be provided.

Adequate flashing should be applied over all window and door openings and a suitable drip edge provided under all openings.

Estimating

An outline should be sketched of each elevation. Measure from corner to corner along each side of the house and add all projections, such as bay windows.

The height of the wall to be covered with siding should be measured from the point where siding starts at the bottom to the top of the wall—and this can best be done by suspending steel measuring tape from the highest window. Use an extension rule or rod to find gable height and place these dimensions in the space provided for each elevation.

Next, multiply width by height for elevation square feet area—and from this deduct the combined window and door square feet area to arrive at the net square feet area for each elevation. (Many estimators, instead of measuring doors and windows, allow 20 square feet per door and 15 square feet per window. Also, where wall

heights and wall treatment are uniform, many estimators arrive at the total gross area by multiplying perimeter by height and deducting total area of openings.) Multiply gable width by height and divide by two to find gable square feet area.

To figure for waste allowance, follow this rule: To the total net square foot area, add eight per cent for waste, and figure to the nearest larger half or full square, or nearest bundle of shingles.

For wood corners, add heights of elevations to find linear feet of corner boards (two boards; one 3" and one 4" are used for each corner). If metal corner bead or flashing is used, figure one foot for each linear foot of corner.

Add sides and bottom of window and door frame to find linear feet of moulding.

For flashing, add widths of window and door frames to find linear feet required, allowing 3 feet per window and 3 feet 6 inches per door.

Allow for cost of caulking to be applied around door and window openings.

Some applicators have found the most efficient method of using labor in installing asbestos cement siding to be the employment of a crew consisting of two mechanics and one helper.

In estimating, it is well to remember that each job will require a nominal charge for clean-up.

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items.

Sources of supply for the items shown in Products Directory.

Sales Items:

( ) Asbestos Roofing Shingles
- ( ) Dutch Lap
- ( ) Hexagonal
- ( ) American Method

( ) Asphalt Shingles
- ( ) Thick Strip Shingles
- ( ) Hexagonal Strips
- ( ) Dutch Lap Type
- ( ) Tapered Individual
- ( ) Lock Type (Patented)
- ( ) Hip and Ridge Shingles
- ( ) Felt Base
- ( ) Flashing Materials

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( ) Roof Cement
( ) Lap Cement
( ) Roofing Tape
( ) Roof Paints
( ) Roof Pruners
( ) Roof Preservatives
( ) Damp Proofing Compounds
( ) Aluminum Base Roof Coating

_____
_____
_____
_____

( ) Built-up Roofing (See Supplies Instruction Sheets)

( ) Caulking Materials

( ) Wood Shingles for Roofing & Siding
- ( ) Certigrade
- ( ) 16" to 2 No. 1
- ( ) 16"—5 to 2 No. 2
- ( ) 16"—5 to 2 No. 3 (Use No. 3 as underlayer in double coursing)
- ( ) 18"—5 to 2¼ No. 1
- ( ) 18"—5 to 2¼ No. 2
- ( ) 18"—5 to 2¼ No. 3

( ) Metal Shingles
- ( ) Aluminum Shingles
- ( ) Steel Shingles

Note: Write Asphalt Roofing Industry Bureau for "A Guide to Roof Protection."

( ) Asphalt Roll Roofings
- ( ) Smooth Surface
- ( ) Mineral Surface
- ( ) Asbestos Fibre Roof Coating
- ( ) Asphalt Saturated Membrane
- ( ) Roof Putties

Sidings

( ) Metal Sidings
- ( ) Aluminum
- ( ) Steel

( ) Wood Siding

( ) ½x4 ( ) Red Cedar ( ) White Pine ( ) Redwood
( ) ½x6 ( ) Red Cedar ( ) White Pine ( ) Redwood
( ) ¾x8 ( ) Red Cedar ( ) White Pine ( ) Redwood
( ) ¾x10 ( ) Red Cedar ( ) White Pine ( ) Redwood

( ) Building Papers
- ( ) Black Waterproof
- ( ) Kraft-Fibre Type
- ( ) Slaters Felt
- ( ) Red Rosin Sheathing
- ( ) Blue Plaster Board
- ( ) Deadening Felt

( ) Wood Grain Straight Butts
( ) Wood Grain Staggered Butts

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( ) Insulated Sidings
- ( ) Brick Type
- ( ) Solder Course
- ( ) Stone Design

( ) Asbestos Siding Shingles
- ( ) Wood Grain Wavy Butts

WOOD SHINGLES—EXTERIOR WALL COVERING

Wood shingles and shakes are a popular and practical form of wall covering, and from the standpoint of beauty there is no more lovely or charming house than one with shingles sidewalls. It is the most economical as well as the most beautiful wall that the exterior of any house can have.

Shingles are manufactured in three lengths or random widths up to 14 inches wide. Shingles are separated into three grades. Generally speaking, the first grade is composed of clear shingles. The second grade consists of shingles with clear butts and admits defects in that portion of the shingles which will normally be covered in use. Third grade shingles are those which normally have defects other than permitted in the second grade. (See Roofs, Wood Shingles.)

First and second grade shingles may be used for side walls when single courses are used and third grade shingles are used for the undercourse when double courses are on sidewalls.

The weather exposure of shingles in single courses should never be greater than half the length of a shingle, minus ½ inch, so that two layers of shingles will be found at every point of the wall. So, on single coursing, the maximum exposure to the weather for 16 inch shingles is 7½", for 18 inch shingles 8½" and for 24 inch shingles 11½".

Shingles on sidewalls are frequently laid in what is called "double-coursing." This is done by using a lower grade shingle under the shingle exposed to the weather. The exposed shingle butt extends about ½" below the butt of the undercourse. When shingles are laid "Double-course" a greater weather exposure is possible, frequently as much as 12" for 16" shingles, 14" for 18" shingles and 16" for 24" shingles.

Sidewall shingles may be left unstained (a few years will give them a beautiful weathered appearance), stained or painted. They may be prestained by bundle-dipping or stained after they are applied. A good shingle stain should be quite thin so that it can be applied evenly and quickly and should be put on when the shingles are thoroughly dry. To secure the most satisfactory paint job, use pure white lead in oil or the highest grade mixed paint.

In new sidewall construction both tight sheathing and spaced sheathing are used. However, spaced sheathing is used only in mild climates. Wooden sheathing should be used to give proper nailing. However, if insulating sheathing or gypsum sheathing is used, nailing strips, spaced the same distance as the weather exposure of the shingles, should be provided to give proper nailing.

Building paper should be placed over the sheathing and under the shingles.

In applying the shingles, the butt lines or "shadow lines" should be even with the upper lines of the window openings and also, whenever possible, with the lower lines of such openings. When single coursed only two nails, each about ¾" from each edge should be used on each shingle. They should not be driven below the surface

how to keep the boom from boomeranging!

Sure, there's a building boom today . . . and with a few operators in the building industry, anything goes. But when the chips are down tomorrow, when the boom becomes a battle for business, good reputations built today will be paying off. That's why far-sighted dealers and contractors are handling only the best materials available; giving top value for every dollar customers spend. They know a reputation for integrity in the boom market today is going to be worth a lion's share of the business tomorrow.

FOR 74 YEARS, the name Carey has meant quality wherever men build with the future in mind. Today, with a home-hungry nation clamoring for more building materials, Carey's vast storehouse of experience serves as a firm foundation for expanding research and production facilities. Carey's men of science are "burning the midnight oil" in the enlarged Carey Research Laboratory, setting the pace for progress in development of desirable new products, improvement of those now familiar. Soon, too, Carey's new plants for production of Asbestos Shingles, Sidings, Asbestos Board and Rock Wool Insulation will be humming along, turning out increased volume of these quality products.

THE FAMOUS CAREY NAME on the job sign helps build the reputations of both the dealer and the builder—for quality. So tap Carey's business-building force for yourself. Build for the future with . .

the Carey line

Asbestos Shingles and Sidings
Asphalt Roll Brick Siding
Roof Coatings and Cements
Asphalt Shingles and Roofings
Rock Wool Insulation
Asbestos Coverall Wallboard
Waterproofing Materials
Miami-Carey Bathroom Cabinets and Accessories

In Canada: The Philip Carey Co., Ltd.
Montreal 1, P. Q.

THE PHILIP CAREY MANUFACTURING CO., CINCINNATI 15, OHIO

and are usually placed so as to be covered by the next course of shingles. Three-penny nails are used on 16" and 18" shingles and longer nails for shingles of greater thickness or length.

When shingles are applied in double-coursing, they are butt-nailed with five-penny, small head, rust-resisting or zinc coated nails. Only 2 nails should be driven into each top course shingle. They should be placed not more than three inches above the butt line and approximately ¾" from the edges of the shingle. Each under-course shingle may be held in place with a single three-penny nail.

The bottom course or row of sidewall shingles should be of double thickness and at least 6 inches from the ground.

On remodeling work shingles may be used to recover old sidewalls of other materials. They are simply nailed on over old siding. Brick walls are easily covered by furring the walls with 1 x 3 or 1 x 4 strips spaced the same distance as the weather exposure of the shingles. The nailing strips must be firmly fastened to the brick wall by means of anchors or special nails for this purpose. A wrought iron nail may be nailed into the mortar joint.

In applying over cracked stucco walls, the nailing strips should be attached with nails long enough to penetrate the stucco and the underlying sheathing. It is not desirable practice to apply shingles directly to the old stucco.

When over-walling around windows and doors, if the old ceilings are thinner than the new wall, moulding strips should be nailed flush with the edges of the old casings to which the shingles should be joined.

DOUBLE COURSED WOOD SHINGLE SIDEWALLS

There has been no development in recent years of greater significance and wider acceptance in the field of exterior home construction than that of Double-Coursed red shingle sidewalls.

It is something of a paradox that the use of two layers of shingles per course, one applied right over the other, affords greater economy than the more conventional single-course method, but such is the case with this relatively new type of application.

Its economy, which is one of the main reasons for Double-Coursing's rapidly increasing popularity, is due to two features: the use of wider weather exposures, and the use of a lower grade shingle for the inner and completely concealed layer.

The second feature contributing to Double-Coursing's economy is the use of lower grade shingles for the under course. Many of the shingle mills produce a type of shingle expressly designed for this purpose, known as Undercoursing Grade. When applied properly, they are completely concealed by the outer course shingles which are nailed directly over them.

The striking beauty, as well as economy, of a Double-Coursed shingle sidewall is responsible for its increasing popularity. The doubled layers of shingles produce heavy shadow lines in the sun, giving a distinct appearance of solidity and strength. These heavy shadow bands, separated as they are by wide exposures, impart a definite close-to-the-ground appearance to the home, in vogue with modern architectural styles. It is particularly effective on two-story homes for this reason.

Along with economy and beauty, Double-Coursed sidewalls brings the many other well known qualities of cedar construction—permanence, strength, long-life, insulation, durability, weather-resistance and ease of application.

Double-Coursing, with its deep shadow bands, accentuates the horizontal lines of the structure on which it is used, and this feature is given additional emphasis by the manner in which the shingles usually are laid, with edges placed close together without the spacing which is customary and essential in roof construction. At a distance, a Double-Coursed sidewall applied in this manner often bears greater resemblance to wide siding than it does to shingles.

In conformance with this modern trend of accentuating the horizontal lines of the house, there are being marketed large quantities of machine-processed shingles, popularly known as "machined shakes." These special shingles, one face of which are grooved in an attractive serrated design, are produced expressly for the outer course of Double-Coursed sidewalls. Their rived surface, with parallel edges, provide wide and unbroken bands of sidewall.

Double-Coursing lends itself to the use of pre-stained shingles, which are laid as the outer course over a layer of unstained undercoursing shingles. These stained shingles are available in cartons as well as the familiar bundles.

HOW TO FIGURE DOUBLE-COURSING COSTS

Sidewalls double-coursed with Red Cedar shingles are very economical because of their wide weather exposures and the use of a lower grade shingle for the inner and completely concealed course. The following is a simple, practical method of figuring the cost of shingles to double-course a square (100 sq. ft.) of sidewall area. This formula applies only when the standard 4-bundle roof squares are used for both inner and outer courses.

* On Line A jot down the price for a standard 4-bundle square of No. 1 or No. 2 grade shingles, whichever is selected for use on the outer course.

LINE A _____

* On Line B write the 4-bundle square price on No. 2, No. 3 or No. 4 grade shingles, whichever is to be used for undercoursing.

LINE B _____

* On Line C enter the sum of Lines A and B.

LINE C _____

* On Line D enter the standard roof weather exposure of the length shingle used. (5", 5½" and 7½" for 16", 18" and 24" shingles, respectively).

LINE D _____

* Multiply Line C by Line D and enter this figure on Line E.

LINE E _____

* On Line F enter the weather exposure to be used. (Maximum exposures are 12", 14" and 16" for 16", 18" and 24" shingles, respectively).

LINE F _____

* Divide Line E by Line F and enter the result on Line G. THIS IS THE TOTAL COST OF SHINGLES REQUIRED TO DOUBLE-COURSE 100 SQ. FT. OF SIDEWALL AREA.

LINE G _____

Some types of shingles, particularly machine processed shakes, are packed in special bundles or cartons so that two such units, applied at the recommended double-coursing weather exposure, will provide outer-course shingles to cover one square (100 sq. ft.). When the under-coursing shingles are packed in standard 4-bundle squares, the following formula should be used in figuring the cost:

* On Line A jot down the price of one 4-bundle square of under-course shingles.

LINE A .....

* On Line B enter the standard roof exposure of this length shingle (see above).

LINE B _____

* Multiply Line A by Line B and enter this figure on Line C.

LINE C _____

* On Line D enter the weather exposure to be used (see above for maximum exposures).

LINE D _____

* Divide Line C by Line D and enter the result on Line E.

LINE E _____

* On Line F enter the price of a 2-bundle square of outer-course shingles.

LINE F _____

* Add Line E to Line F and enter the result on Line G. THIS IS THE TOTAL COST OF SHINGLES REQUIRED TO DOUBLE-COURSE 100 SQ. FT. OF SIDEWALL AREA.

LINE G _____

Section 9

Insulation and Weather Stripping

CONTENTS OF THIS SECTION

Dealer's Function in serving his customers
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Description of related items.
Tips for salesmen.
Technical data for salesmen.
Minimum stock inventories.
How to increase the Dollar Sales Volume
Technical definitions
Installation
Reduction of Fuel Bills
Sales Items

For Related Sections See Master Index

The merchandising of insulation and its related items which, briefly consist of retaining materials, weather stripping, storm sash, and louvres, is becoming increasingly significant as the realization of repeated fuel scarcities is driven home to the prospective home builder by continual strikes or threats of increased fuel costs.

Reliable investigators report that 87 out of 100 prospective home owners, when interviewed, voluntarily placed insulation as a "must."

1. **War and post-war shortages:**—During the late war, fuel rationing and also the Federal endorsement (thru lavish publicity) of insulation for both new and existing homes, made the public "insulation conscious;" and it became no longer necessary for an insulation salesman to stage a demonstration of the product's merits; instead, by merely estimating the price of the installed job and submitting an order form to sign, he usually received the order with little or no competition. Unfortunately, the retail lumber dealer had but scant opportunity to share this bonanza for several reasons, among which were:

(a) Insulation was being installed by special pneumatic machines into the wall spaces of existing homes and few, if any, dealers had, nor were they able to obtain, this mechanical equipment.

(b) New homes were not being built so that dealer's stocks did not enjoy turn-over from that source.

(c) Finally, because the demand greatly exceeded the available supply, the dealer, even if he had orders, was unable to serve his trade on account of material scarcity.

(d) Manufacturers of insulation had, over a period of years, embarked on a program of specialization; i.e., "packaged" insulation to be distributed thru retail dealer outlets for new homes and "installed" insulation services to be rendered to existing structures by either franchised contractor units, who gave concentrated attention to this work, or, in major cities, Company owned operations; both of which were intended to create public acceptance and pave the way for the dealer to attain greater volume on new homes.

The dealer should and can "cash in" now!—On NEW HOMES—Insulation is a practically definite requirement for any new home and, because it has become just as much a part of building materials as sheathing or plaster base, it should be stocked, displayed, and promoted by the dealer.

The sales will increase his dollar volume. The gross and net profits will equal, if not exceed, those on Lumber and Millwork. Storage requirements are simple. Handling is convenient as all insulating material is packaged in standard size cartons or bags.

ON EXISTING STRUCTURES:—There are two approaches to this problem; one consists of the sale of packaged insulation, which the customer or his contractor may install either in open attic floors or between rafters and on gable ends. This is quite practical where the customer, for one of several reasons (among which are masonry walls), does not desire side wall insulation.

The second alternative, which can become profitable to the dealer, is the insulation of side walls by the pneumatic method.

Since few dealers are equipped with the essential blowing machines, hose, scaffold, etc., and also because of the scarcity of trained personnel for this work, it is advisable to effect a co-operative arrangement with a reliable insulation installation company by which the dealer will still control the sale, schedule, overhead, and his share of the profit to which he is entitled by having created and developed the "lead" to the point of sale.

This latter arrangement can be made to result in a mu-

tually agreeable trading basis whereby the insulating contractor can become a profitable customer to the dealer for his other building material requirements.

It will aid the dealer in effecting his goal of "one stop" merchandising by being able to offer a complete insulation service.

2. **Development of "one stop" merchandising:**—Currently, and for several years hence, the general trend will veer toward new home construction and the dealer will (if equipped to serve) reap the benefits of the increasing demand for "one stop" complete service.

"One stop" service is a definite benefit to the customer. By placing his complete order at one source, he is enabled to obtain products which "match" or correspond.

He is able to anticipate his over-all costs. He can and does receive more service and attention than if he "shopped" at several points.

3. **Easier home financing:**—His credit, mortgage, and finance problems are made much simpler; particularly if the dealer can place, at his disposal, the necessary application forms and assist him to obtain mortgage commitments (refer to Sec. XXV—Financing and Insurance).

Insulation is not only recognized but has been given preferential attention by F.H.A. and other financing agencies; and, by making a "one stop" purchase. the customer is enabled to pay for the insulation for his home over the period of years of his mortgage with the assurance that, if he buys the right product, in the correct thicknesses, he will reap dividends because insulation, properly installed, actually "pays for itself."

4. **How to display this product:**—Because only one type of material and relatively few related items are concerned, display is simplified.

By emphasizing that this product is functional, and not decorative, and that, after installation, it is concealed; and that once in, even if wrong, little can be done to correct it, a simple open stud exterior wall panel, properly insulated and protected by glass, and a small rafter or attic floor section, which can stress the importance of proper thickness, will be sufficient.

Pictures and pamphlets, furnished by the manufacturer together with technical data covering heat loss prevention and fuel saving in suitable brochures, will round out the display.

If desired, the wall section can be increased to accommodate one window frame and sash, which can, by being weather stripped or equipped with storm sash, serve as a "silent salesman" for the related items which will be more fully described in following pages which describe the various kinds of insulation and the commonly accepted related items.

5. **Description of product:**—Insulation and weather stripping—The most appropriate definition of insulation given in Webster reads—"to prevent the transfer of heat to or from (bodies) by the interposition of non-conductors" —.

In the construction industry, several methods are employed to prevent transfer of heat by placing or interposing non-conductors of heat between the open stud spaces which occur in exterior frame walls and between open rafters or attic floor joists (depending on whether or not the attic space is suitable for present or future occupancy).

In addition, the exposed under side of floors, either under kitchens, sun parlors, or other extensions which are separated from the basement proper or the underside of rooms and landings which may projeect beyond the house line or be exposed on the under side, such as rooms extending over porch ceilings, projecting bay windows, stair platforms, etc., should be similarly treated.

The insulating materials available to the industry are numerous and are processed in various ways; usually because of the nature of the basic raw materials.

With two exceptions, all insulation for the construction industry is manufactured on the principle of providing a light weight, easy-to-handle, and install material, to either completely or partly fill the wall and other spaces which, because of its either fibrous or cellular composition, will imprison myriads of air cells ("non-conductors")....These, in turn, obstruct or delay the transfer of heat or cold (because insulation works in both directions).

Materials used in manufacture: numerous raw materials are used by manufacturers and, in every instance, good results are obtained by their use. Much depends on the form of the finished product, which will and does influence their acceptance by the dealer, owner, contractor, or mechanic. As currently offered to the industry here are a few.

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (V) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

( ) **1. "Rock Wool"**—either made of slag, lime stone, or silicates processed in "pellet" form in bags; "loose" in bags; "batts" 15″x24″ or 15″x48″ (to fit between framing members); "blankets" in roll form in widths to fit framing (both "batts" and "blankets" provided with vapor resisting envelope covers or vapor seal paper with mailing flanges cemented to one side) in several thicknesses.

( ) **2. Processed wood fiber**—manufactured in rolls of several widths and thicknesses, encased in resilient waterproofed "crepe" type of fiber cover, stitched to permit expansion or "stretching" to its most efficient length (it is usually compressed to 1/5 its length when packaged).

( ) **3. Glass wool**—finely drawn glass fibers processed with appropriate binders to result in a cotton like product, offered in several shapes; "loose" in bags; "junior batts" in bags; "regular batts"; "blankets"; all in several widths and thicknesses.

( ) **4. Cotton**—the by products of the cotton fabric industry are processed into a soft fluffy unit which is cemented or stitched to a fiber backing and made into rolls of several thicknesses and widths and compressed into cartons. When unrolled and placed in position, the latent resiliency of the cotton fibers gradually expand the material in the designated thickness at which it is most efficient.

( ) **5. Felted**—either organic or vegetable fibers such as hair or sea grass, are processed and placed between and stitched to fiber damp-proofed cover sheets in several widths and thicknesses.

( ) **6. Sintered mica**—under various trade or brand names, mica is processed by heat to expand into light weight, puffed up fragments which are graded for maximum size and bagged in suitable containers. The characteristics of this type of insulation is that it lend itself to "pouring" into otherwise difficult of access parts of the structure.

( ) **7. Shredded paper and asbestos**—Ordinary newsprint, processed with chemical baths and shredding machinery is combined with formulated proportions of asbestos fiber and bagged in containers. It, too, can be "poured" or "spread" on flat surfaces.

While there are many other types of loose or cellular insulation, space limits further description of these. However, the two exceptions to the loose or blanket type deserve comment. They are

( ) **Rigid type**—either wood, cane, or other vegetable fibers are processed; mixed with suitable binder; and formed into sheeets by the use of molds, presses, and heat treatment. (See Board Products Section VI.)

These sheets are made in various widths, lengths, and thicknesses, and are used:

As structural exterior sheathing (protected with asphalt base surface treatment); as INTERIOR—plaster base; as decorative wall and ceiling panels—in full size sheets; as pre-sized and ornamentally grooved wall or ceiling units.

( ) **Reflective type**—metal foils, either aluminum or other metals, which retain a bright finish, are applied to either a "kraft" type of waterproofed fiber (on one side or two sides), gypsum plaster base, or insulating board plaster base. These "foil" types depend on their insulating qualities by their ability to reflect radiant heat.

The "kraft" fiber type is fabricated into rolls of various widths and nailed to the walls or ceilings.

The ridged type is made to regular plaster base dimensions and applied in the same manner as regular plaster base.

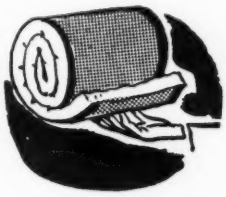
(Continued on Page 244)

2. INSL-COTTON IS EASY TO INSTALL!

Extremely light and easy to handle, Insl-Cotton can be installed without special tools. Tucks into difficult corners; won't sag or pack!

3. INSL-COTTON IS LIGHT!

The official figure, established by the government, is .875 of a pound per cubic foot—the lightest insulation material on the market today. Handling Insl-Cotton is a feather-weight job.

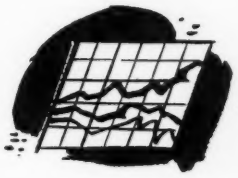


4. INSL-COTTON IS HARMLESS TO HANDLE!

There is nothing in Insl-Cotton to irritate the installer's skin, eyes or lungs—no shot, no silica, no fine glass or abrasive particles. Just clean, soft, cotton fibers!

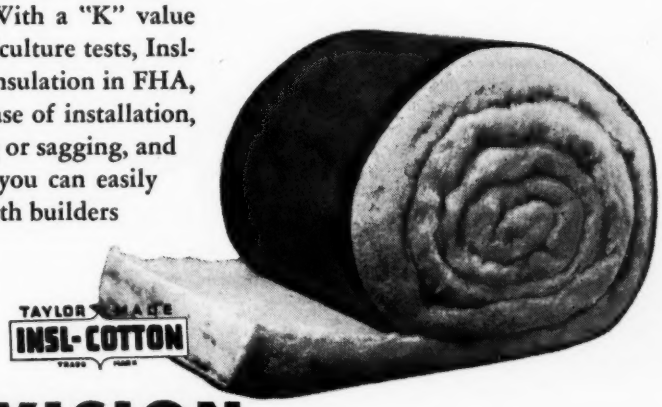
5. INSL-COTTON IS EFFICIENT!

Flame-proof cotton is the most efficient insulating material on the market today—the "K" value of Insl-Cotton is only 0.24. Its nature-made dead air cells stop the heat coming and going!



GOVERNMENT INSPECTED - GOVERNMENT CERTIFIED

Insl-Cotton is made under government supervision and certified by government inspectors as flame-proof and up to specified standards—a claim which no other type insulation can make. With a "K" value of 0.24 established through U. S. Department of Agriculture tests, Insl-Cotton *exceeds* technical requirements for approved insulation in FHA, FPHA and HH-I-528 specifications. Add to this its ease of installation, its extreme light weight, the fact that it is non-settling or sagging, and its moisture-proof and fire-retarding qualities—and you can easily see why Insl-Cotton has sky-rocketed in popularity with builders and home owners!



INSL-COTTON DIVISION

TAYLOR *Bedding Mfg. Co.*

TAYLOR, TEXAS

A PARTIAL LIST OF INSL-COTTON DISTRIBUTORS

PARTRIDGE LUMBER SALES
700 Lumber Exchange — Minneapolis, Minnesota

WHOLESALE DISTRIBUTORS
709 N. Grandview Avenue — South Bend, Indiana

WHOLESALE BLDG. PRODUCTS CO.
1020 N. 19th Street — Omaha, Nebraska

ADDISON-RUDESAL CO.
717 Ashby Street — Atlanta, Georgia

THOS. MOULD LUMBER CO.
216 Security Building — Sioux City, Iowa

RINGEL BROTHERS
399 Elizabeth Avenue — Newark 8, New Jersey

HARRY D. STROUSE
2114 Sherman Avenue — Evanston, Illinois

VICTOR H. LEEBY CO.
1345 Second Avenue N. — Fargo, North Dakota

MASON SUPPLIES, INC.
732 Decatur Street — Los Angeles 21, California

SUPERIOR ASPHALT PRODUCTS
1448 59th Street — Chicago, Illinois

ROCKFORD WHOLESALE BLDG. MTLS. CO.
201 East State Street — Rockford, Illinois

UNIVERSAL CONTRACTING CO.
4065 Carpenter Avenue — Bronx 66, New York

MICHIGAN WHOLESALERS, INC.
901 Leesbury Road, Box 536 — Ft. Wayne 1, Indiana

MICHIGAN WHOLESALERS, INC.
104 Ganson Street — Jackson, Michigan

MICHIGAN WHOLESALERS, INC.
Box 345 — Toledo, Ohio

SAN ANTONIO MACHINE & SUPPLY CO.
Box 971 — Corpus Christi, Texas

C. GRIGSON COMPANY
8654 14th Street — Oakland, California

WOOLF DISTRIBUTING CO.
608 East Church Street — Libertyville, Illinois

S. T. BURTON COMPANY
Builders Building — Chicago, Illinois

NORTHWEST SUPPLIES
1200 Central — Minneapolis, Minnesota

Insulation & Weatherstripping

(Continued from Page 240)

There are many other types of structural insulation, such as cellular pipe covering for heating systems, cork sheets for refrigeration, etc. See Heating and Plumbing Section 10.

Fireproofing—of the various types of loose or cellular insulations, only "rock wool" and sintered mica makes claims of being fireproof. The remainder are chemically treated to be flame proof or fire resisting.

6. **Description of related items:**—Related items—these consist, for the most part, of retaining materials such as board products (refer to Sec. 6), building papers or felt (refer to Sec. 8), plywood, etc. (refer to Sec. 1).

In addition, magazine type stapling hammers and staples, extremely useful in securing the selvage edges of "batts", "blankets", or light weight retaining materials such as felts, sisal kraft, and corrugated fiber boards to framing members, and hold the loose insulation fill in place (refer to Sec. 11—Hardware).

Weather stripping—the heat losses caused by infiltration around door and window openings is always considerable. However, with the installation of insulation, these losses become even more pronounced and provisions to decrease them by the use of weather stripping is a widely accepted practice.

Weather stripping is produced in many styles, shapes, and materials; among which are:

( ) **Surface type**—either metal or plastic or wood members in narrow widths are provided with recessed slots in which strips of felt or synthetic rubber are firmly inserted. These are applied to the contact faces of the door or window where it meets the stop or stile and act as a flexible, elastic barrier to infiltration.

Other surface types—are either molded felt in narrow strip rolls or fabric enclosed stitched members with rope like fiber inserts. The stitched edge acts as the nailing flange.

Both of the latter are quite pliable; can be bent around corners; and are simple to cut and fit.

( ) **Spring type**—either bronze, copper, or other resilient rust-resisting metals are processed into thin single or double thickness leaves and formed into strips of standard size lengths for door and windows.

The application of these occurs in the window stiles and door jambs. By nailing the pre-punched nailing edge to the frames, the spring action of the leaf permits it to remain in close contact with the door or window and considerable infiltration is prevented by its use. For doors and door sills or saddles heavier gauge metals are provided.

This material is usually packaged in cardboard tubes, which contain a set of the required members to fit the specific opening and included are application directions and rust-proof nails.

( ) **Recess type**—these consist of rolled, tongued and grooved, narrow width sections made of light gauge zinc, aluminum, or similar rust-proof metals.

The application consists of grooving the sash or doors with a special grooving plane which cuts a groove in the precise location required for accurate fitting with the metal member, which is secured to the stile or jamb. (This application is widely used on existing structures and satisfactory results are reported by users.) Refer to Sections II, III, and XI.

Caulking:—To prevent infiltration in insulated homes, caulking around the outside of frames and where the sills rest on masonry walls is a recommended practice (refer to Sec. XI).

( ) **Prefabricated type:**—Several outstanding sash, door, and frame manufacturers have developed techniques by which "weather stripping" is incorporated with the sash and frames at the time of manufacture. Economy of factory engineered precision methods; increased efficiency because of complete unit production; and lowered over-all costs to the consumer appear to be a logical consequence of these efforts and should be given serious consideration by the dealer.

( ) **Storm Sash:**—While weather stripping is an accepted type of protection against infiltration, the use of storm sash has many advantages, among which are—

The extra glass surface creates a "dead air" space, which considerably offsets the "surface" effects which prevail on single glazed windows. It minimizes drafts and condensation; and, if snugly fitted, will reduce the edge infiltration to nearly the same extent as well installed weather strip.

( ) Double glazed sash—some enterprising glass manufacturers, in cooperation with sash and window frame fabricators, have developed a "double" pane of glass with sealed fused edges, which is possible to install in a conventional sash frame and thereby eliminate the need for storm sash. These, of course, should be weatherstripped.

( ) **Ventilators for insulation:**—Roof and wall ventilators are a recommended unit to enable the user to obtain maximum benefits from insulation. They are installed either in roofs (above the insulation level) or in gable ends, or at eaves.

By providing cross ventilation (two vents to each gable or closed section) approximately 3 sq. ft. per 1,000 sq. ft. of insulated area, they eliminate super-heated air in summer and condensation in winter months. See Section X Air Conditioning.

Either wood or prefabricated metal louvres are used. An exacting requirement is that the inner side be covered with rust-proof insect screen cloth of not less than 16 mesh, to prevent bugs, flies, birds, and other animal life to find haven in these spaces.

SALES ITEMS

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

Insulations:

( ) Loose Mineral Wool
( ) Nodulated Mineral Wool
( ) Expanded Mica Granulated Fill Type
( ) Glass Fibre Batts
( ) Glass Fibre Blankets
( ) Wood Fibre Batts
( ) Wood Fibre Blankets
( ) Mineral Wool Batts
( ) Mineral Wool Blankets
( ) Cotton Batts
( ) Cotton Blankets
( ) Loose Wood Fibre (Redwood)
( ) Felted Types
( ) Reflective Type

_____
_____
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Weatherstripping :

( ) Metal Weatherstripping
( ) Random Length
( ) Pre-Cut
( ) Wood Weatherstripping
( ) Felt Weatherstripping
( ) Synthetic Rubber Weatherstripping
( ) Plastic Weatherstripping

Miscellaneous:

( ) Insulating Aggregates—(See Plaster & Cement Sections)
( ) Insulating Lath — (See Lath Products Section)
( ) Insulating Boards—(See Board Products Section)
( ) Insulating Double Unit Windows
( ) Storm Sash
( ) Storm Doors
( ) Combination Doors

_____
_____
_____
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( ) Caulking Materials
( ) Wood Louvres
( ) Metal Louvres
( ) Wood Ventilators
( ) Metal Ventilators
( ) Attic Fans
( ) Wood-Louvres with Plastic Screens

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Items Asked For But Not Normally Stocked

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_____

7. **Tips for Salesmen:—**

Sell the whole house, roof, or ceiling, and walls! Point out that, while the heat losses through walls are less than through ceiling or roof rafters, the wall area is usually three times as great!

Sell FULL THICKNESS—do not waver on this point because, while any thickness will produce an improvement over no insulation, full benefits can only be realized when the full thicknesses (as recommended by the manufacturer) are installed.

Remember that weatherstripping and/or storm sash will reduce infiltration.

Be sure to include ventilating louvres for those areas which are indicated.

Sell insulation by the use of the two main appeals to the customer with complete personal confidence that you are really giving him something he needs.

Appeal No. 1—is COMFORT—"all rooms evenly heated in winter; cool bedrooms in summer;" quieter homes because of less noise.

Reduction of drafts—caused by convection currents resulting from surface effects.

Children are healthier and can safely play on the floors, which are warmer.

Decorating costs are reduced because dust deposits caused by air currents through wall or ceiling sections are minimized.

Appeal No. 2—is ECONOMY—Fuel saving—Federal Agency tests on two identical homes, side by side, under normal climatic conditions, using same fuel and maintaining identical temperatures; the one insulated showed a saving of 44% in amount of fuel used (this experiment was published in Circular 7166 issued in April, 1941, by the U. S. Bureau of Mines.

Weatherstripping is a "year round" product and readily lends itself to window or store display. Acquire display and place in convenient racks circulars which indicate heat losses per window or door and dramatize them by converting the infiltration losses per season in terms of coal, oil, or gas fuel.

Storm sash and screens—Alert dealer salesmen will sell storm sash and screens as an economy to the customer because both units can be fitted, marked, and use identical hardware at one operation (refer to Sec. III—Windows, Doors, and Millwork).

Hardware — for mounting both above items — numerals to effect "getting the right one back in place" (refer to Sec. XI—Hardware).

8. **Technical data for salesmen:**—To quickly estimate the amount of insulation required for any job, the square foot is the most convenient unit.

Depending on the brand and kind of insulation stocked by the dealer, the number of sq. ft. can easily be transposed into rolls, cartons, or bags.

Note: In every instance figure the NEXT LARGER number of rolls, cartons, or bags.

How to estimate side walls from plans—

Rule I.—develop total height from top of foundation wall to upper plate.

Rule II.—measure perimeter of building and multiply perimeter by height to find total gross sq. ft.

Rule III.—count number of single windows and doors; and deduct
15 sq. ft. for each single window
20 sq. ft. for each door
and find
Total net sq. ft. for side walls.

Rule IV. Divide total by the sq. ft. contained in each unit package of insulation and find correct answer.

How to estimate attic ceiling insulation—

Rule I.—find total sq. ft. of area by multiplying widths by lengths and find sq. ft. gross area (make no deductions for chimneys nor stair well openings as this will be used up in "trap" or batten doors).

Rule II.—divide gross sq. ft. total by number of sq. ft. per roll, carton, or bag, and arrive at correct answer.

How to estimate attic rafter and gable insulation—
for quick results, increase gross amount of attic floor area by 50%. This will provide for the rafter slopes and gable ends.

To illustrate the ease with which insulation for a whole or part house can be figured by the dealer salesman, the typical house 24'x30' will be used as an example.

Example of Insulation Estimating

Specification: House—2 story—1/3 pitch, 24'x30'

1st story 8'6"; 2nd, 8' equals	16'6"
Add for 1st floor, 2nd floor, and attic joists	2'0"
Total height of exterior wall	18'6"

1. Estimating walls:—

Perimeter 24'x30'x2=108'x18'6"	1,998 sq. ft.
Deduct—16 wds. @ 15 sq. ft. ea.	240 sq. ft.
3 doors @ 20 sq. ft. ea.	60 sq. ft.
Total deductions	300 sq. ft.
Net insulatable exterior wall area	1,698 sq. ft.

2. Estimating attic ceiling area:

24'x30'=720 sq. ft.	720 sq. ft.
Total for walls and attic ceiling	2,418 sq. ft.

3. Alternative, attic rafter and gable insulation instead of floors:—

24'x30'=720x1.5 (no deductions)	1,020 sq. ft.
Add walls from above	1,698 sq. ft.
Total for house walls, rafters and gables	2,718 sq. ft.

Note: Insulation, when furnished in

40 lb. bags (loose) will usually cover	20 sq. ft.
Rolls	100 sq. ft.
Cartons 8 batts 15"x48" or	40 sq. ft.

In this example, the total amounts for walls and ceiling insulation would be:

2,418 sq. ft. { 25—100 sq. ft. rolls or
61—40 sq. ft. cartons or
121—20 sq. ft. bags

Total amounts for walls, rafters and gables would be:

2,718 sq. ft. { 28—100 sq. ft. rolls
68—40 sq. ft. cartons
136—20 sq. ft. bags

9. **Minimum stock inventories:**—Insulation sufficient for three whole house jobs 7,500 sq. ft.

The equivalent of 100 sq. ft. rolls	75
The equivalent of 40 sq. ft. cartons	190
The equivalent of 20 sq. ft. bags	375
Louvres (wall)—8"x12"—12"x12"—12"x16"	6 ea.
Louvres (roof)—standard	12
Weather stripping in lengths	5,000 l.f.
Weather stripping in window sizes	50
Weather stripping in door sizes	15

Storm Sash—(refer to Sec. III)
Staples, automatic hammers, etc.—(refer to Sec. IX).

10. **How to increase the dollar volume:—**

1. Sell the whole house—full thick—include walls!
2. List the storm sash and screens required.
3. Include storm or combination doors.
4. If attic is unfinished and rafters and gables are to be insulated, figure retaining material (refer to Sec. VI).
5. If attic rafters are to be insulated and finished attic stairs is not shown, figure on "Bessler" or equivalent roll-type stairs.
6. Figure flooring to cover attic ceiling joists.
7. Trim for attic windows (weights and cord).
8. All hardware for storm sash, screens, attic windows, storm or combination doors.
9. Include figures in over-all cost to customer to facilitate easy budget payments for duration of mortgage.
10. Suggest attic partitions and knee walls to organize open space into usable quarters for occupancy and storage; and estimate framing, trim, and wall covering required (include door hardware and shelving in closets (refer to Sections I, III, VI, and XI).

11. **Insulation definitions:**—The technical terms commonly applies in describing the merits of insulaton may be (and usually are) confusng to the inexperienced salesman or customer.

A brief explanation of the most frequent terms is considered desirable sales information. These are in part—

"B.T.U." (abbreviation of British Termal Unit) is em-

REDUCTIONS IN FUEL BILL WITH USE OF STORM SASH AND INSULATION

FOR TYPICAL ONE-STORY HOUSE

	FRAME Wood or Shingle Siding	VENEER Brick or Stucco on Frame	MASONRY Stucco on Tile or Concrete Block	MASONRY Brick and Concrete Block	MASONRY Brick and Concrete	MASONRY Stone 8"
Relative Fuel Bill of Home (without storm sash and insulation)	100	104	107	111	118	126
DESCRIPTION OF WEATHER-PROOFING	NUMBER OF FUEL UNITS SAVED BY WEATHER-PROOFING					
WINDOWS AND DOORS						
1. Weather stripping on all windows and doors	3	3	3	3	3	3
2. Storm sash and storm doors on all openings	12	12	12	12	12	12
3. Weather stripping plus storm sash and doors	12	12	12	12	12	12
CEILING INSULATION						
1. Insul. lath (1/2"). Attic not vented	9	9	9	9	9	9
2. Insul. lath (1"). Attic not vented	14	14	14	14	14	14
3. 1" insul. board over joist. Attic vented	12	12	12	12	12	12
4. 1" insul. board and 1/2" insul. lath vented	15	15	15	15	15	15
5. 2" blanket between joist. Attic vented	18	18	18	18	18	18
6. 4" blanket between joist. Attic vented	22	22	22	22	22	22
WALL INSULATION						
1. Insul. board lath (1/2") with plaster	5	7	9	11	16	21
2. Insul. lath (1/2") with insul. sheathing 25/32"	8	10	..	..	..	..
3. 1" blanket between stud or furring	9	12	15	18	25	31
4. 2" blanket between stud or furring	12	15	18	22	29	36
5. 3 5/8" blanket between stud or furring	13	16	20	24	31	39

FOR TYPICAL TWO-STORY HOUSE

Relative Fuel Bill of Home (without storm sash and insulation)	100	105	111	116	127	138
DESCRIPTION OF WEATHER-PROOFING	NUMBER OF FUEL UNITS SAVED BY WEATHER-PROOFING					
WINDOWS AND DOORS						
1. Weather stripping on all windows and doors	5	5	5	5	5	5
2. Storm sash and storm doors on all openings	18	18	18	18	18	18
3. Weather stripping plus storm sash and doors	18	18	18	18	18	18
CEILING INSULATION						
1. Insul. lath (1/2"). Attic not vented	6	6	6	6	6	6
2. Insul. lath (1"). Attic not vented	8	8	8	8	8	8
3. 1" insul. board over joist. Attic vented	7	7	7	7	7	7
4. 1" insul. board and 1/2" insul. lath vented	9	9	9	9	9	9
5. 2" blanket between joist. Attic vented	11	11	11	11	11	11
6. 4" blanket between joist. Attic vented	13	13	13	13	13	13
WALL INSULATION						
1. Insul. board lath (1/2") with plaster	7	10	13	16	23	30
2. Insul. lath (1/2") with insul. sheathing 25/32"	12	16	..		..	..
3. 1" blanket between stud or furring	13	18	22	26	35	45
4. 2" blanket between stud or furring	18	23	28	32	43	53
5. 3 5/8" blanket between stud or furring	19	24	30	35	45	56

ployed as the basic unit of heat measurement. It is equal to the quantity of heat required to raise one pound of water from 63-F to 64-F or one degree.

"U"—this is the co-efficient of heat transmission in number of "B.T.U.'s" transmitted in one hour per square foot of the floor, roof, ceiling, or outside wall for a difference of one degree Fahrenheit between the inside and the outside or vice versa and includes the total "K" value of all of the elements in the wall, floor, roof, or ceiling.

"K" equals thermal conductivity and is the amount of heat expressed in "B.T.U." transmitted in one hour thru one square foot of homogeneous material one inch thick for a difference of one degree Fahrenheit between the two surfaces of the material.

"C" equals thermal conductance and is the amount of heat expressed in "B.T.U." transmitted in one hour thru one square foot of NON-homogeneous material for a temperature difference of one degree Fahrenheit between the two surfaces of the material (used for plaster board, hollow tile, etc.).

"Conductivity"—(same as "C" above.)

"Convection"—the transmission of heat by the natural or forced circulation of a liquid or air.

"Radiation"—the transmission of heat thru space by wave motion.

"Degree days"—a unit representing a difference of one degree Fahrenheit existing for one day between the "heat-

(Continued on Page 255)

Based on one sq. ft. per hour—per one sq. ft. of Exterior Wall

Exterior walls	"U" Values Uninsulated	Insulated	Reduction in B.T.U.	Percent approx.
Frame, with clapboards	0.25	0.066	0.184	74.0
Frame, with wood—shingle siding	0.25	0.066	0.184	74.0
Frame with cement stucco	0.30	0.069	0.231	77.0
Frame with brick veneer	0.27	0.067	2.03	75.0

EXAMPLES OF THE USE OF THESE TABLES

A one-story house has a brick veneer exterior wall and neither insulation nor storm sash. What will be the reduction in fuel cost if storm sash and storm doors are added?

Locate the proper page and column for one-story brick veneer construction (page 6, column 2). The Relative Fuel Bill for such a house is 104 units per year. Read down the column to the figure opposite "Storm Sash and Storm Doors." This figure, 12, represents the savings from 104 units, or about 11% of the fuel bill.

In the same house (without storm sash or insulation), what savings can be expected from the use of both storm sash and 4-inch blanket ceiling insulation?

From page 6, col. 2, add the savings from Storm Sash, 12 units, to the 22 units saving shown opposite "4-inch blanket between joist." The 34 units total is the saving from 104 units, or about a third of the fuel bill.

A two-story house is to be built with 8"-stone exterior walls. The fuel bill has been estimated at $120 per year. What insulation must be added to reduce this to $60 per year?

The Basic Fuel Bill for such a house (page 7, col. 6) is 138 units. If this is reduced by one half, or 69 units, the desired savings will be reached. Add—Windows and Doors, Storm Sash: 18 units; Ceiling Insulation, 4"-blanket: 13 units; Wall Insulation, 1"-blanket: 45 units. Total: 18 + 13 + 45 = 76 units, which is satisfactory.

Similarly, other combinations of savings may be added, but in each combination you must limit your choice to only one Window-and-Door Weather-proofing, one Ceiling Insulation, and one Wall Insulation.

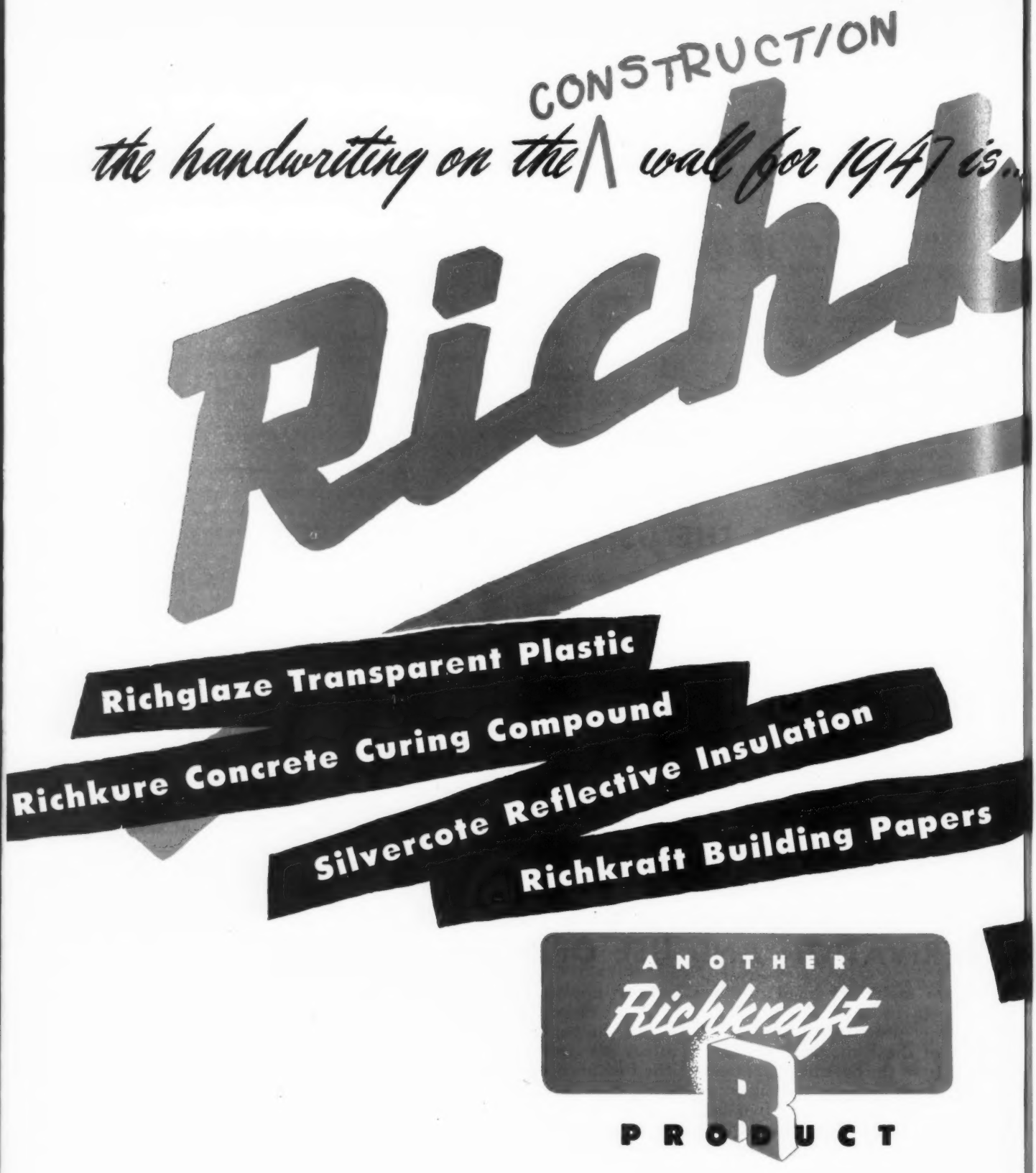
DERIVATION AND USE OF THESE TABLES

Storm sash and insulation are usually applied only to rooms above the ground level. Hence, weather-proofing the house will reduce the heat-loss of these rooms, but will not affect the heat-loss from the basement. However, the fuel burned will heat the entire house including the basement. The savings of fuel units shown in these tables are based on heating the entire house and correspond more closely to test results than do tables based on calculations in which the basement heat-loss is neglected.

The houses used in the derivation of these tables were a one-story structure 36 ft. by 28 ft. and a two-story structure 28 ft. by 24 ft., each with a full basement. The ceiling height of all rooms was taken to be 8 ft., and the area of windows and doors was assumed to be 15% of the total exterior wall area.

These dimensions are average for typical one- and two-story houses. Reasonable changes from these dimensions, in the ratio of length to width or in the percentage of glass area, will not seriously affect the tabulated results. If a house is without a basement but uses a first-floor utility room, this table may still be used.

The figures across the top of the table give a comparison of the fuel bill for different constructions — all without insulation. For example, where 100 fuel units are used in a two-story frame house (column 1, page 7) the same house with brick-and-concrete-block exterior walls (column 4, page 7) would require 116 fuel units, or approximately a 16% larger fuel bill. The figures in any one vertical column give the reductions in the fuel bill to be expected by the addition of insulation. See the examples on page 7.



The RICHKRAFT

General Offices: Builders Building, Chicago 1, Illinois

(Continued from Page 249)

ing season". This is based on 210 days beginning in September and ending April 1st.

If, in a certain location, such as for instance St. Louis, Mo., the average temperature during these 210 days (by U. S. Weather Bureau reports shows an average of 40 degree "F"; and, if the desired inside temperature is 70°-F, then the heating system will need to produce sufficient heat so that, with all heat losses thru walls, windows, roofs, and floors, the interior will still remain at 70°-F.

Obviously the more heat leakage can be decreased, the less heat will have to be produced.

"Average indoor and outdoor temperatures"—the standard "degree day" is based on an average indoor temperature of 65°-F.

"B.T.U." equivalents for fuels:—1 ton of coal will produce approximately 27,000,000 "B.T.U." and may be burned at an efficiency of 60%.

1 gal. of oil will produce approximately 141,000 "B.T.U." and will burn at an efficiency of 70%.

Manufactured gas will produce 535 "B.T.U." per cubic foot and will burn at 80% efficiency.

Relative heating costs based on the above "B.T.U." equivalents per 1,000,000 "B.T.U."—

Coal @ $10.00 per ton	$ .64
Oil @ 10c per gal.	1.01
Gas @ 60c per 1,000 cu. ft.	1.41

From the above comparisons, it is obvious that both oil and gas, when used as fuel, are considerably more expensive than coal.

The purpose of insulation is to decrease the rate of heat transfer to a point where gas or oil can be used with but a slight increase over coal in an uninsulated house.

To illustrate the percentage of heat leakage which is prevented when adequate full thickness insulation is installed in a home, the following chart is given.

Roofs, floors, and ceilings will benefit to the same or even better degree.

The infiltration losses around windows and doors remain constant unless weather-strip or storm sash are added.

INSTALLATION

In applying blankets, measure the stud height between top and bottom stud plates. Add three inches to this measurement and cut blankets in this length. Most manufacturers place marks on the blankets a specific distance apart to aid in measuring. Measure back 1½ inch from each end of strips, cutting back the insulation leaving a nailing flange top and bottom. Starting at the top, place the blankets between studs. Vapor-proof paper must face to inside of rooms. Be sure the insulation is in snug contact with the plate and the top flange laps over the face of the plate. Nail flanges along ends and edges with nails spaced six to eight inches apart. Tacks, lath nails or staples may be used. The bottom flange should be brought out over the face of the bottom stud plate and tacked in place the same as the top flange.

Apply blankets overhead in ceilings and roofs the same as in walls, with vapor-proofed paper facing downward. Then laying blankets between attic floor joists with a finished ceiling below, the vapor-proofed side should face downward. The flanges need not be unfolded. Do not apply flanged side to top of attic floor joists.

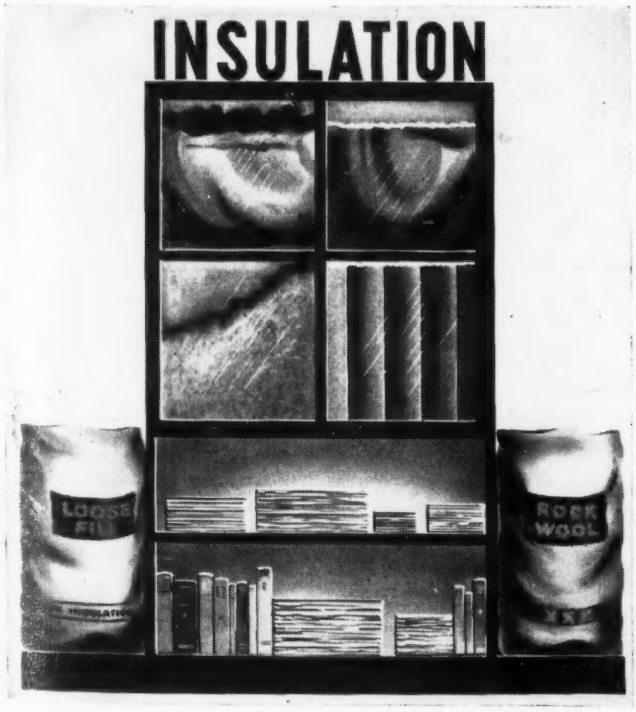
In applying batt insulation to side walls start at the bottom. Push batts between studs, with vapor barrier facing the inside of the room. Be sure the bottom batt is in snug contact with the bottom stud plate. All batts should be butted closely together, leaving no voids at the joints. The top batt should be cut to fit snugly against the top stud plate, and should be cut for top nailing flange as with a blanket. In roofs and ceilings, apply batts the same as in walls, with vapor barrier facing downward. Lay batts between attic floor joists with vapor barrier facing downward. The flanges need not be unfolded, and the ends of batts should butt firmly together leaving no voids at the joints. Cut end batts so there are no voids under eaves or at gable ends.

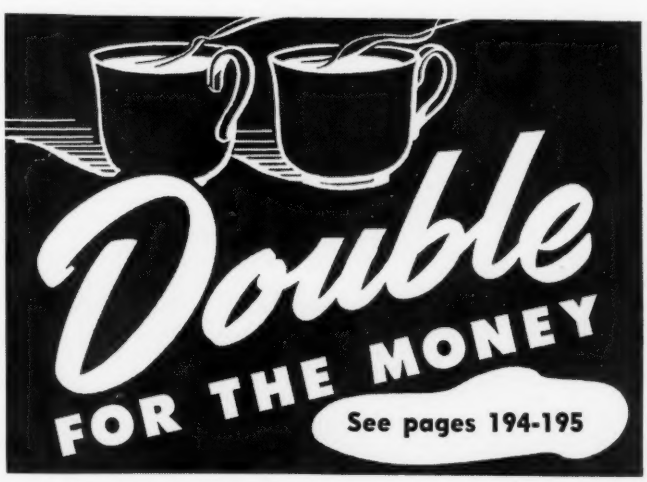
Where there are narrow stud spacings, cut the insulation to proper width, leaving vapor-proofed paper intact to form a new flange. Push batts between studs, bringing surplus vapor barrier out over face of studs. Form a folded flange on the cut side similar to the uncut flange on the opposite edge. Nail and cut off surplus paper along outside edge of stud.

If a house has an unoccupied attic or space between the ceiling and the roof, insulate the ceiling. If a house has no space between the ceiling and the roof insulate the roof. If a house has no basement or has a room over an unheated space, insulate the floor over the cold space.

Many paint failures, both interior or exterior, and the deterioration of both the insulation and wall members of a house are caused by condensation of water vapor which is always present, in the air of a room. The water vapor will pass through building materials and in cold weather may condense within the wall areas. A vapor barrier, which prevents the passage of moisture through a wall, must be placed on the warm side of a wall section. Ordinary building paper or roofing felts are not satisfactory. Metal foils make excellent vapor barriers as do asphalt treated felts and laminated kraft papers with an asphalt center.

Then, too, the space above an insulated ceiling should be ventilated to the outside air to allow the removal of any water vapor. This may be accomplished by the installation of vents or louvres. One-eighth inch of ventilating surface is required for each square foot of ceiling area. This ventilation area should be kept open the year around.





Yes, THE HEATILATOR* IS EASIER TO SELL because...

The Heatilator Fireplace unit lives up to every sales claim for it. It has been *proved* in thousands of homes and summer camps—under *all* conditions—in all parts of the United States and Canada for *20 years!*

Your selling job is more than half done when you display the Heatilator Fireplace. People have confidence in the Heatilator name. It is nationally advertised in leading magazines.

They trust and respect its *proved* record. And every Heatilator sale gives you another satisfied customer, added good will, and a reputation for handling proved, dependable merchandise.

Write today for complete dealer information.
Heatilator, Inc., 444 East Brighton Ave., Syracuse 5, N. Y.

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Circulates Heat... Will Not Smoke

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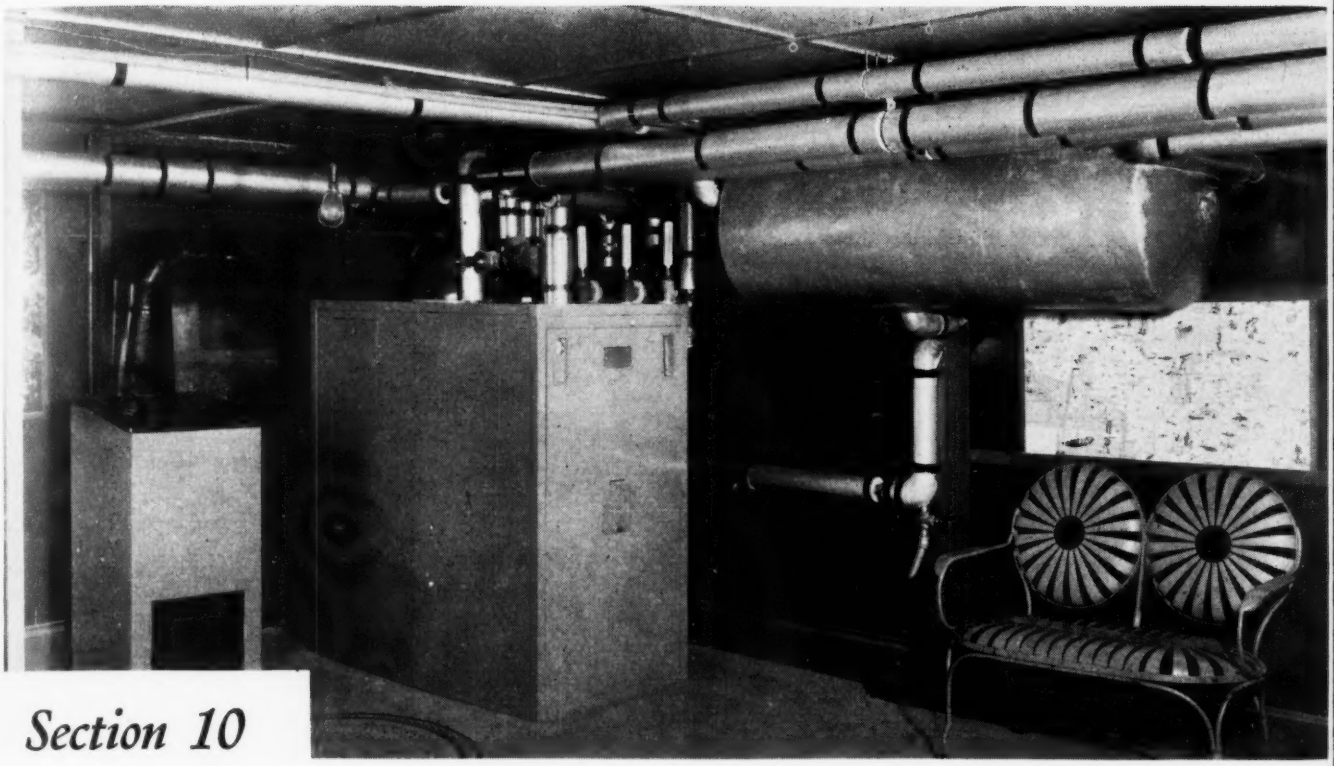
T.M. REG. U.S. PAT. OFF.



Section 10

Heating, Plumbing & Air Conditioning

Lumber dealers whose operations date back to the turn of the century can well remember the time when the dealer who handled paint and hardware was the exceptional pioneer. Today, of course, lumber dealers account for a vital part of the total volume of retail paint and builders hardware sales.

The retailers of today who are pioneering the sale of plumbing, heating and air conditioning are setting a trend that will have the same inevitable result. Tomorrow's retail lumber and building products industry will play a substantial part in the consumer selling of these items.

This trend would have been accelerated long ago except for two considerations (a) the traditionally integrated distribution and installation structures of these industries and (b) the necessity for post-sale servicing of mechanical equipment.

These considerations both carry less weight today than heretofore. Greatly increased post-war production will lessen the first and war time development and sale of post-installation services in lumber yards diminishes the importance of that factor in the dealer's mind.

Both dealers and manufacturers recognize that in a free market the factor who controls the packaged home sale to the consumer is the dominant factor in the local distribution structure.

And the dealers are today controlling the majority of the new home sales.

The package selling dealer has the choice of two policies in administering the mechanical equipment of the sale—to delegate the responsibility of supply and service to another retailer of these products, sacrificing his profit on both labor and materials—or to organize his own sources of wholesale supply and installation mechanics.

If he chooses the latter course his sales and profits are potentially increased upwards of 30 percent providing he can assure (a) competent departmental management, and (b) the cooperation of installation and service men.

The latter presents a very real problem in many areas but competitive forces are the inevitable answer in supplying skilled workmen as in the supply of materials and equipment.

It is predictable that the plumbing and heating department will be a main line in the home building department store of tomorrow.

CONTENTS OF THIS SECTION

Air Conditioning Systems
Fireplaces and Equipment
Heating Controls
Heating Sales Items.
House Heating Systems.
Plumbing and Heating Service Items.
Plumbing Sales Items.
Selling Tips for the Plumbing, Heating and Air Conditioning Salesman
Sewage Disposal Systems
Water Heating Systems
Water Systems

For Related Sections See Master Index

PLUMBING

It has been aptly said that the veins and arteries of the houses are the plumbing pipes concealed in the walls and under the floors. Literally upon them rests the responsibility for the health and much of the comfort and convenience of the family.

Plumbing is customarily divided into three parts—the fixtures, the water supply system and the sewage disposal system.

Through the water supply system the house is booted up with an outside source of water supply either a private or public utility.

Through the sewage-disposal system the refuse of bath and kitchen flows to the city sewage system or a private septic tank.

Because labor and roughing in materials account for nearly two-thirds of the cost of plumbing in a house it is possible for the dealer to supply two bathrooms for less than twice the cost of one.

Laying Out Plumbing System

Two considerations should control the layout of a plumbing system (1) The inclusion of the necessary fixtures for bathroom and kitchen served by an adequate drainage and hot- and cold-water system; (2) a special effort to make the plumbing installation economical by concentration of the location of fixtures.

For greatest economy it is desirable in one-story houses to plan the kitchen and bathroom as adjoining rooms, but with sufficient space in the separating wall to carry the necessary plumbing lines. Through this combination of rooms and by placing the fixtures in the adjoining rooms along the common wall, only one vent stack is required for all the fixtures, and the lengths of drainage and water lines are reduced to a minimum.

In two-story houses it is desirable to have the plumbing fixtures on the second floor located over the fixtures on the first floor, so as to assure a concentration of mechanical equipment, minimizing drainage and water lines and permitting a single vent stack.

In small dwellings at least one laundry tray should be provided. In the case of one-story houses, due to space limitations, it may be advisable to include the laundry tray in the kitchen in combination with the sink. In two-story houses, where more utility space is provided, a double laundry tray should be located in the utility room as near the kitchen plumbing as possible.

With the exception of the water closet which should be of vitreous china, the plumbing fixtures should be either cast iron or pressed steel with an acid resistant porcelain enamel finish. The fixture fittings should be of good quality, of a type which can be easily repaired or replaced. Chromium finish on fittings and exposed pipe is desirable, due to its high resistance to corrosion.

Plumbing fixtures should be of good quality, but care should be taken to avoid the installation of fixtures too costly in proportion to the total cost of the dwelling. As a general rule the cost of the plumbing system complete should be about twelve (12) percent of the total cost of dwellings.

Drainage system—the house drainage system should consist of a main trap with a fresh-air intake on the house side of the main trap running to the outside of the house, either with an inverted U or a screened wall vent. The placement of the fresh-air intake under any window or adjacent to a door should be avoided. The main house drain stock should extend above the roof not less than 1 foot. A main vent pipe should be connected to the stack below the lowest fixture and carried up to a point above the highest fixture where it may again enter the stack or pass through the roof separately. Each fixture should be individually vented into the main vent.

Attention to the following points will insure a durable, adequate drainage system: (1) High quality of materials and workmanship, (2) well calked and sealed joints, (3) proper sizing of drainage and vent piping, (3) individual venting of fixtures, (5) proper pitching of mains and branches, (6) clean-out facilities at bends in drainage piping, (7) proper traps.

In localities where only neither water supply nor sewage utilities are available private utilities may be required. These would ordinarily consist of—

1. Sewage disposal system, involving the use of a septic tank and tile field.
2. A water-supply system with pump and storage tank for either shallow or deep well.

Sewage disposal—The problem of private sewage disposal is one which must be very carefully handled due to danger of pollution of water supply. Good practice dictates that: (1) Septic tank should be water tight and of durable construction; (2) septic tank should not ordinarily be located on a lot of less than 5,000 square feet in area, and when combined with a well additional precaution must be taken to avoid the possibility of contamination of the well; (3) tile field should be laid out after checking carefully the rate of absorption of the soil and the number of occupants; (4) lay-out of tile field should be carefully checked in relation to the general terrain, elevation, and slope to water supply; (5) a septic tank of less than 300 gallons capacity should not be used.

Home water supply—For home water supply the source of water should be carefully checked against possible pollution. The vertical distance between the level of the water in the well or other source to the location of the pumping plant must be determined, in order to select the proper type of equipment. If this vertical distance is 22 feet or less, the equipment will be classed as "shallow well." If this vertical distance is more than 22 feet the equipment will be classed as "deep well." Unit home pumping plants are available powered either by gasoline engines or electric motors. In case electricity is not available, the gasoline-powered unit may be used.

Important consideration in installation of the home pumping plant are: (1) good workmanship in installation, (2) high quality materials, (3) avoidance of trapping in any lines, (4) well-lubricated and well-packed pump, (5) adequate storage tank.

Extreme care must be exercised in the design and location of wells and sewage disposal plants, especially when both occur on the same plot.

PLUMBING

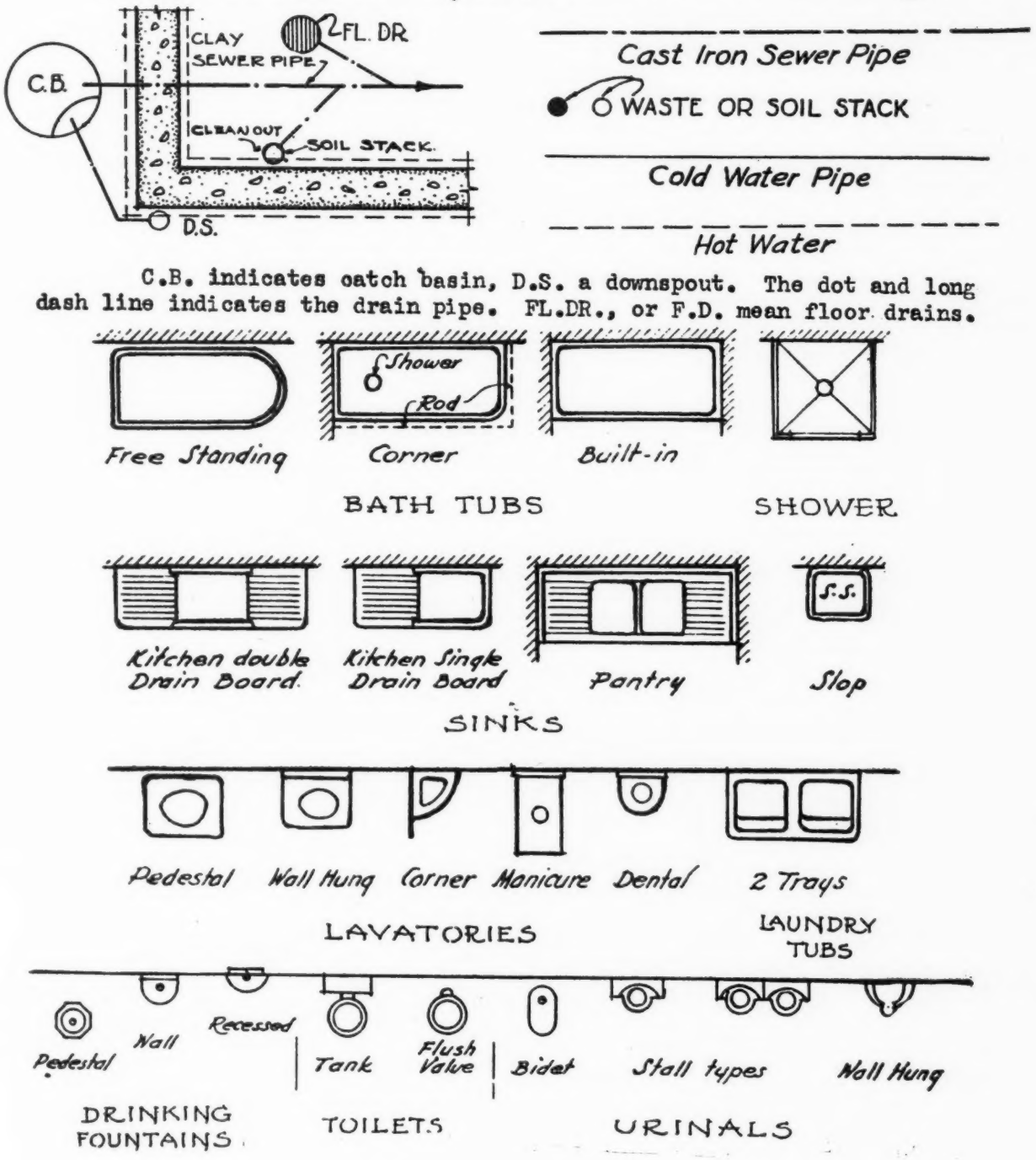
Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

Sales Items

( ) Automatic Pumps
( ) Bath Tubs
( ) Cabinet Showers
( ) Cistern and Well Equipment
  ( ) Drive Pipe
  ( ) Horizontal Force Pump
  ( ) Well Point
( ) Copper Tubing
( ) Drainage Specialties
( ) Electric Water Systems
( ) Flat China Sinks
( ) Iron Pipe
( ) Lavatories
( ) Pumps
  ( ) Deep Well
  ( ) Force (Windmill)
  ( ) Hand
  ( ) Hydraulic Ram
  ( ) Jet Type
  ( ) Lift Type
  ( ) Shelton Well
  ( ) Utility

Architectural Symbols for Plumbing



C.B. indicates catch basin, D.S. a downspout. The dot and long dash line indicates the drain pipe. FL.DR., or F.D. mean floor drains.

Footnote: The term "lavatory" applies to the fixture used for washing the face and hands. The word comes from the Latin word "lavare" meaning to wash. The words wash basin and wash stand are synonymous, but colloquial.

"Water closet" is a term universally used in the plumbing industry, by health officials, and by the government. The term "toilet" is also correct but less frequently used in the plumbing industry to refer to the individual fixture.

The designation of public or semi-public washrooms or restrooms in schools or other buildings as "lavatories" has tended to increase the confusion in terminology. Inasmuch as the term "lavatory" not only mean the individual fixture but also a room for washing hands and face, it is exactly synonymous with the word "washroom," both of which are perfectly good terms to use in referring to a room containing both lavatories and water closets, for public or group use.

Heating, Plumbing, Air Conditioning

The following list consolidates the actual items of a Plumbing inventory taken from a successful distribution list.

Plumbing and heating service items your customers may ask for:

A

( ) Anti splashers
( ) Arms, guide flush valve
( ) Arms, shower
( ) Assemblies, ballcock
( ) Augers, closet, sewer, sink
( ) Bumpers, screw, tack
( ) Bumpers, flushpipe strap
( ) Burners, monitor (urn)
( ) Burners, range oil
( ) Bushings, pipe

B

( ) Ballcocks, elevated
( ) Ballcocks, top supply
( ) Balls, rubber tank
( ) Bands for pipe covering
( ) Bars, shower
( ) Bars, towel
( ) Bends, waste
( ) Bibbs, flanged, hose, plain
( ) Bolts, chainstay
( ) Bolts, closet
( ) Bolts, sink, stove
( ) Brass and copper pipe rods and tubing
( ) Brushes, copper fitting
( ) Brushes, flue
( ) Bulbs, bathspray
( ) Bulbs, furnace
( ) Bumpers, bar hinge

C

( ) Cabinets, medicine
( ) Candles, plumbers
( ) Caps, ballcock, china bolt
( ) Caps, oil bottle
( ) Caps, pipe
( ) Caps, vent
( ) Cement, household Duco
( ) Cement, iron
( ) Cement, plastic
( ) Cement, waterproof tile
( ) Cesspools, belltrap
( ) Chain, beaded
( ) Plumbers
( ) Chainstays
( ) Chemicals, plumbers
( ) Clamps, hose
( ) Clamps, joint runner
( ) Clamps, soilpipe
( ) Clamps, steel pipe repair
( ) Clamps, wire hopper
( ) Cleaner, boiler, closet bowl
( ) Cleaner, drainpipe
( ) Cleaner, enamel and porcelain
( ) Cleaner, flexible sink
( ) Closet seats
( ) Cloths, wiping
( ) Cocks, bath
( ) Cocks, basin
( ) Cocks, boiler drain
( ) Cocks, gas heater, hose
( ) Cocks, gas pillar
( ) Cocks, gas range, service
( ) Cocks, pet, tri
( ) Cocks, sill (lawn)
( ) Coils, furnace, firepots
( ) Coils, furnace hot water
( ) Coils, hot water copper
( ) Collars, sink
( ) Compound, pipe joint
( ) Cones, syphon
( ) Connections, bathcock
( ) Connections, gas range
( ) Connections, ground joint
( ) Connections, speedy basin
( ) Connectors, compression, SAE
( ) Controls, damper
( ) Couplings, bathcock
( ) Couplings, bead chain
( ) Couplings, hose
( ) Couplings, lavatory, red
( ) Couplings, boiler
( ) Couplings, caulking, pipe
( ) Couplings, water meter
( ) Covers, cockhole
( ) Covers, trap
( ) Covers, toilet tank
( ) Cups, force (Plungers)
( ) Curtains, shower
( ) Cutters, gauge glass
( ) Cutters, pipe, tubing
( ) Cutoff, low water

D

( ) Destroyer, soot
( ) Diaphragms, low pressure
( ) Diaphragms, flush valve
( ) Dies, block type
( ) Discs, valve
( ) Dishes, soap
( ) Drainers, cellar
( ) Drains, washing machine

E

( ) Elbows, pipe
( ) Elbows, compression
( ) Elbows, flush
( ) Elbows, furnace
( ) Elbows, rubber, slip
( ) Elbows, twin
( ) Elbow, union radiator
( ) Escutcheons
( ) Expansion tanks

F

( ) Faucets, combination sink
( ) Faucets, laundry tray
( ) Faucets, sink, deck type
( ) Ferrules, trap screw
( ) Filler, tub
( ) Filler, washing machine
( ) Filters
( ) Firepots
( ) Fittings, pipe
( ) Fittings, superflow
( ) Fixtures, divertor, shower
( ) Fixtures, lav. centerset
( ) Flanges, box
( ) Flanges, closet bend, floor
( ) Flanges, shower arm, bar
( ) Floats, copper
( ) Fountains, drinking
( ) Frames, hacksaw
( ) Funnels, sink
( ) Fuses for relief valves

G

( ) Gaskets, asbestos manhole
( ) Gaskets, closet
( ) Gaskets, flange union
( ) Gaskets, sink
( ) Gauges, altitude, compound
( ) Gauges, combination pressure altitude & thermometer
( ) Gauges, oil tank
( ) Gauges, pressure, steam, water
( ) Gauges, vacuum
( ) Generators, hot water brass
( ) Glass, gauge
( ) Glaze, porcelain
( ) Grating, lavatory

H

( ) Handles, faucet
( ) Handles, oil bottle
( ) Hangers, sink
( ) Hangers, solid & split ring
( ) Hangers, Van
( ) Heads, shower
( ) Heaters, gas water
( ) Hinges, toilet seat
( ) Holdbacks, shower curtain
( ) Holder, flushpipe
( ) Holder, toilet paper, tumbler
( ) Holder, toothbrush china
( ) Hooks, lag screw, wire pipe
( ) Hooks, robe
( ) Hooks, "S", tank
( ) Hooks, shave (scraper)
( ) Hose, portable shower

I

( ) Increasers, closet spud
( ) Inserts for cross handles
( ) Iron, hanger perforated
( ) Irons, caulking, yarning

J

( ) Joint runners, asbestos
( ) Joints (insertable)

K

( ) Keys, airvalve
( ) Keys, sillcock

L

( ) Ladles, pouring
( ) Lampwick, cotton
( ) Laundry trays
( ) Lead goods
( ) Lead, magic
( ) Legs, lavatory
( ) Levers, tank, iron, chrome
( ) Lighters, gas pilot
( ) Lighters, oil burner
( ) Liquid, boiler, soldering
( ) Locknuts, ballcock, brass
( ) Locknuts, brass, pipe

M

( ) Menders, hose clinching
( ) Mesh for faucet strainers

N

( ) Nipples, hose
( ) Nipples, pipe
( ) Nipples, solder
( ) Nozzles, bathcock, over-rim
( ) Nozzles, hose
( ) Nuts, ballcock coupling
( ) Nuts, basincock tail
( ) Nuts, closet screw or bolt
( ) Nuts, compression, SAE
( ) Nuts, slipjoint (coupling)

O

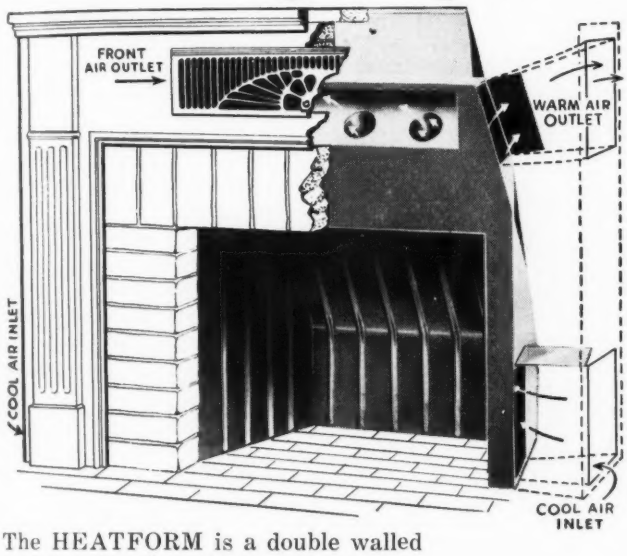
( ) Oakum
( ) Offsets, closet
( ) Offsets, double, sink & lavatory
( ) Oil, cutting, penetrating
( ) Oil Storage tanks

P

( ) Packing, rubber sheet
( ) Packing, valve stem, graphite
( ) Paste, soldering
( ) Pedestals, radiator
( ) Petcocks
( ) Pigtails
( ) Pins, furnace
( ) Pins, shower curtain
( ) Pipe fittings
( ) Pipes, flush, tank supply
( ) Pipes, supply, basin
( ) Plates, cesspool
( ) Plates, floor & ceiling
( ) Plates for split hangers
( ) Plugs, basin, washtray
( ) Plugs, boiler, fuse, repair
( ) Plugs, drift
( ) Plugs, lead, traps
( ) Plugs, pipe
( ) Plugs, test
( ) Pots, solder
( ) Protectors, drain
( ) Pulls, closet wood

HEATFORM

The Superior Heat Circulating Fireplace



The HEATFORM is a double walled metal unit. A perfect guide for the masonry walls. It consists of firebox, throat, and damper. It costs but little more because it saves labor and materials used for constructing the old time fireplace.

SAVES FUEL AND PREVENTS HEAT LOSS

The Heatform is a warm-air furnace and fireplace combined; is double-walled with spacious air chambers around the lower firebox and upper throat. Cool air is drawn from the floor into the heating chamber where it is heated and returned to the room through the upper outlets. The outlets may be placed below or above the mantel shelf.

NO DEAD AIR POCKET IN AIR CHAMBERS

The upper and lower heating chambers are connected at each end of the throat, and also through the throat by a series of round air flues which insure complete contact of air to all heating surfaces, including the rear lower wall of the firebox where most heat is generated.

COSTS BUT LITTLE MORE

The Heatform is an assembled unit (Firebox, Throat, and Damper), which replaces other materials and labor necessary to construct an ordinary fireplace.

PREVENTS SMOKY FIREPLACES

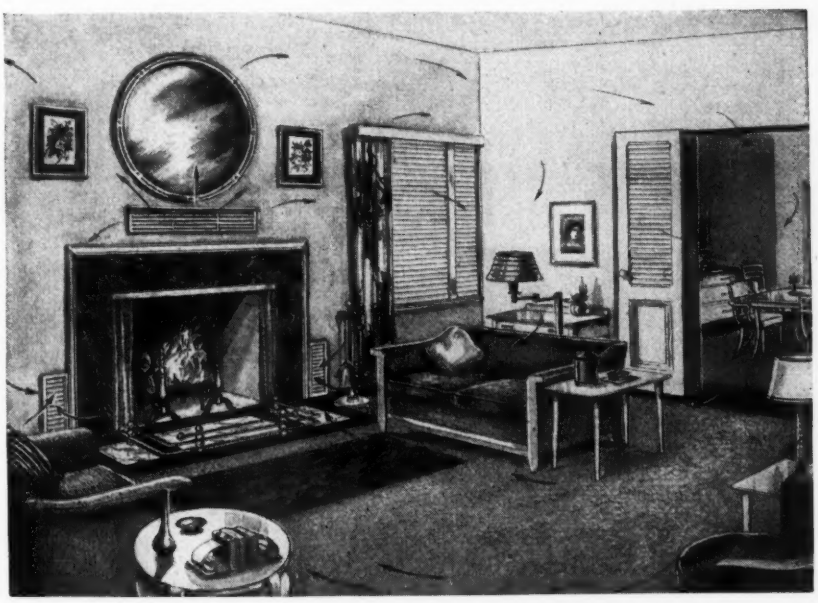
The Heatform is scientifically designed and built to proper angles and dimensions. It guides the construction of the masonry walls from hearth to flue.

RIGIDLY CONSTRUCTED

The firebox is made of boiler plate steel with individual RIBS die-formed into the metal. Our twenty-five years experience in manufacturing fireplace heating units has proven the ribs to be necessary. Another design feature is that the rear outside wall follows the contours of the firebox, this allows a masonry downdraft shelf which covers all metal below the chimney flue. Thus no loss of heat up the chimney from rusted out downdraft shelf.

SUPERIOR FIREPLACES

provide comfort, economy, and smokeless operation



Arrows show warm air flowing from the Superior Fireplace to all corners of the room and into adjoining rooms, returning along the floor to the air intake grills completing the circulation.

BUILDING MATERIAL DEALERS—*write for full information*

SUPERIOR FIREPLACE CO.

1708 EAST 15TH STREET **LOS ANGELES 21, CALIF.**

Manufacturers of

HEATFORMS, Form Dampers, Blade Dampers, Fuel Grates, Ash Dumps, Cleanout Doors, and Drape Screens.

Heating, Plumbing, Air Conditioning

( ) Range boilers
( ) Reamers, bibb seat
( ) Reamers, pipe
( ) Reducers, closet spud
( ) Regulators, damper
( ) Regulators, hot water
( ) Repairs, copper collar
( ) Rings, chainstay, comb. faucet
( ) Rings, pipe hanger
( ) Rings, sweat
( ) Rings, test plug (rubber)
( ) Rods, float, lower eye, upper
( ) Rods, sewer & drain-pipe
( ) Rosettes, basin (crowsfeet)
( ) Rust remover

S

( ) Saws
( ) Screens, oil burner
( ) Crews, closet, thumb
( ) Seats, Baby toilet
( ) Seats, ballcock
( ) Seats, closet
( ) Seats, renewable faucet
( ) Sewer Pipe
( ) Shields, expansion
( ) Shoes, waste & overflow
( ) Showers, exposed 2 valve
( ) Showers, gooseneck
( ) Showers, portable
( ) Sid Arm Heater
( ) Sleeves, bibb, china
( ) Sleeves, compression
( ) Soil pipe & fittings
( ) Soil, plumbers
( ) Solder, aluminum
( ) Solder, sweat, wire
( ) Spearheads, sewer rod
( ) Sprays, bath
( ) Springs, bending, copper, lead
( ) Sprinklers, lawn
( ) Spuds, closet
( ) Stands, boiler
( ) Stands, laundry tray
( ) Steel pipe
( ) Stems, repair fitall
( ) Stoppers, rubber
( ) Stoppers, suction sink
( ) Stops, shower, self closing
( ) Strainers, all types
( ) Strainers, urinal
( ) Straps, bumper
( ) Straps, pipe, galv., copper
( ) Supplies, basin
( ) Supplies, bath
( ) Supplies, low down tank
( ) Switches, pump

T

( ) Tailpieces, all types
( ) Taps, pipe
( ) Tees, compression, SAE
( ) Tees, dandy cleanout
( ) Tees, slip
( ) Tees, waste & overflow
( ) Thermometers, angle & straight
( ) Thermostats
( ) Toilet seat hinges
( ) Tools, radiator repair
( ) Tools, refill repair
( ) Tools, sizing for tubing
( ) Torches
( ) Traps, all types
( ) Traps, grease
( ) Tubes, boiler
( ) Tubes, circulating
( ) Tubes, flanged covering
( ) Tubes, overflow, refill
( ) Tubing, copper
( ) Tubing, rubber
( ) Turnpins

U

( ) Unions, compression, SAE
( ) Unions, gas heater
( ) Unions, pipe

V

( ) Valves, air, loose key, coin
( ) Valves, cage, flush
( ) Valves, check, foot, gate, globe
( ) Valves, oil burner
( ) Valves, pop safety, wood wheel
( ) Valves, pressure reducing
( ) Valves, radiator, relief
( ) Valves, stop & wastes
( ) Valves, vacuum relief
( ) Valves, yankee syphon
( ) Vapor Pans

W

( ) Washers, all types
( ) Wastes, continuous sink
( ) Wastes, pop up basin
( ) Wastes, basin straight
( ) Wastes & Overflow, bath
( ) Wastes, trip lever bath
( ) Wheels, cutter, pipe, tube
( ) Wicking, asbestos
( ) Wires, upper lift
( ) Wires, snake
( ) Wrenches, all types

HEATING

From a producers viewpoint heating is probably the most competitive picture in the entire housing fied.

There is competition between fuels, competition between heating elements, competition between systems and competition between mechanical equipment.

The situation is complicated by the fact that the fuels, elements, systems and equipment are often interchangeable (for example oil, gas, coal or coke may all be used with hot water, air or steam systems and with radiators, convectors, panel, baseboard, or furnace types of heaters.

This presents to the dealer a varied merchandising picture which is both advantageous and disadvantageous. The latter because it is often difficult to advise the consumer as to the best combination for his particular requirements —the former because of the enhanced probability of feeding every need and purse.

In providing a satisfactory method for heating low-priced houses, there exist three essential factors which not only affect the selection of the heating system itself, but to a marked degree control the design of the dwelling as a whole. These three regulating factors are: (1) Adequate capacity as related to climatic severity; (2) proper relation of heating plant design to house design; (3) use of an economical fuel.

In the selection of a heating plant it is advisable to allow a factor of safety of at least twenty (20) percent over the actual heating load as calculated from the heat losses of the dwelling. If the main heating plant provides domestic hot water, this load must be added to the calculated heat loss of the dwelling before the factor of safety is added. Most heat losses are figured on a temperature range from 0° to 70° F. Therefore, in any locality where the temperature commonly falls below 0° F., it is advisable to base the calculations on a temperature range of 80° F., thus insuring adequate capacity.

Comparison of Fuels

Material	Heating value	Assumed price	Gallons of water which could be heated from 32° to 212° F for 1 cent
	Btu per lb.		
Soft wood	8000	$5 per cord (1½ short tons)	32.0
Hard wood	8000	$5 per cord (2½ short tons)	53.3
Soft coal	13 000	$4 per short ton	43.0
Hard coal	13 000	$7 per short ton	25.0
Coke	12 000	$5 per short ton	32.0
Charcoal	16 000	$25 per short ton	8.5
Fuel oil	18 000	$1.25 per barrel (42 gallons)	30.0
Kerosene	18 000	$0.10 per gallon	8.3
Alcohol	12 000	$0.50 per gallon	1.0
Gasoline	19 000	$0.20 per gallon	3.5
Ice (to absorb heat)	160	$0.35 per 100 pounds	e.32
	Btu per cu. ft.		
Natural gas	1000	$0.40 per 1000 cubic feet	17.0
Manufactured gas	600	$1 per 1000 cubic feet	4.2
	Btu per kw. hr.		
Electricity	3400	$0.10 per kilowatt-hour	.23

e Water from 212° F to 32° F, gallons for 1 cent.

NOTE.—Ice in melting absorbs 143 Btu per pound, but the ice water thus formed also absorbs from 15 to 20 Btu additional before it leaves the refrigerator, making a total of about 160 Btu.

Hard coal when burned gives out about 13 000 Btu per pound, and if it costs $7 per ton the last column shows that 25 gallons of water can be heated from 32° to 212° F by burning 1 cent's worth of coal, provided none of the heat were lost; or kerosene supplies 18 000 Btu per pound, and 1 cent's worth of it at 10 cents per gallon would heat 8.3 gallons of water from 32° to 212° F

HEATING

Sales Items

Plants & Systems

( ) Automatic Oil Fired Controlled Heat Furnaces
( ) Automatic Vapor Vacuum Heating Systems
( ) Built-in Electric Room Heaters
( ) Built-in Wall Heaters
( ) Camp and Cabin Stores
( ) Coal Burners
( ) Coal Coke Heaters
( ) Coal Furnaces
( ) Coal Heaters
( ) Coal Wood Heaters
( ) Combined Heating—Cooking Stoves
( ) Conversion Burners
( ) Electric Room Heaters
( ) Electric Steam Radiators
( ) Floor Furnaces
( ) Gas Fired Boilers
( ) Gas Heating Systems

★ Amazingly Simple ★ Amazingly Saleable

H.C.Little

OIL BURNING FURNACES CAN BE YOUR NEW SOURCE OF PROFIT

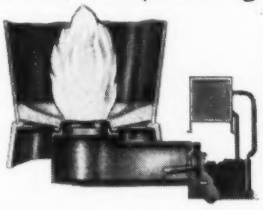
To Keep You Ahead of Competition

To your other building material lines, add the H. C. Little kind of automatic oil heat—the kind that is especially designed and priced for the small home market—with the combination of three outstanding advantages not possessed by any other oil heating line.

1. EXCLUSIVE, PATENTED H. C. LITTLE ELECTRIC IGNITION has NO pilot light or "low fire" stage to waste fuel, cause soot or smoke—a BIG SALES FEATURE that ONLY H. C. Little has successfully applied to low-cost vaporizing furnace-burner equipment.

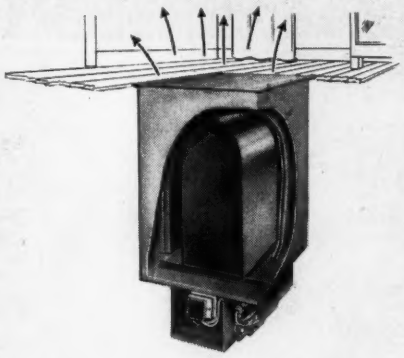
2. THERE ARE H. C. LITTLE UNITS OF EXACTLY THE RIGHT SIZE to heat any small home in complete comfort with minimum heat loss and highly efficient "long cycle" operation. Even heat flow and maximum economy can be achieved because the unique design of the H. C. Little oil burner enables it to be "balanced" against the typical small-home heat load.

3. THE ELONGATED, PATENTED H. C. LITTLE VAPORIZING BURNER DESIGN converts low-cost furnace oil (including catalytic oil) into a rich, soot-free vapor, which burns with a clean, smokeless flame at very high efficiency. No moving parts – no motors or blowers – no nozzles. Over 100,000 in successful operation.



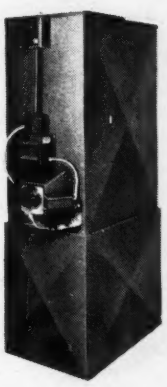
OUTSTANDING UNITS FOR 5- AND 6-ROOM HOMES

ALL UNITS LISTED BY UNDERWRITERS' LABORATORIES



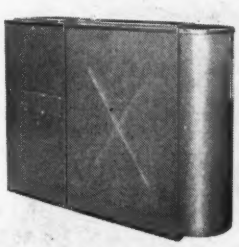
H. C. Little Oil Burning Floor Furnace

Compact, factory assembled, with electric ignition and automatic controls. Quick, easy installation between floor joists. Grille supports weight of unit. Two sizes: 47,250 & 75,000 Btu output.



H. C. Little Oil Burning Utility Type Furnace

An automatic winter air conditioner that is ideal for modern homes without basements. Compact; fits neatly in small utility room or closet. Very high overall efficiency. Blower, filters and humidifier included. 85,000 Btu output.



H. C. Little Oil Burning Winter Air Conditioner

Provides luxurious comfort, even under the most severe conditions. Completely automatic, with blower and filters, ready to install. Two sizes: 85,000 & 125,000 Btu output.

H.C.Little BURNER CO.

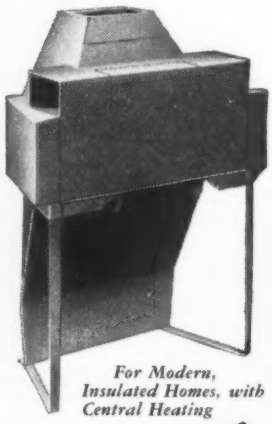
PERFECT HEAT FOR THE HOME

SAN RAFAEL CALIFORNIA

FACTORY REPRESENTATIVES IN PRINCIPAL CITIES

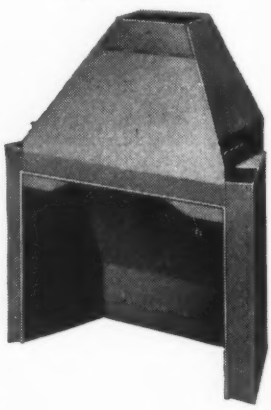
FIREPLACE UNITS
FOR ALL YOUR CUSTOMERS

More sales—better profits for you—with the Bennett Line — Fireplace Units, Dampers (Steel and Cast-iron), Clean-outs, Ash Dumps, Lintel Bars, etc. . . . to fit *every* prospect's requirement. *Only Bennett* builds *two* types of Fireplace Units, to meet *all* building needs.



For Modern, Insulated Homes, with Central Heating

For Camps, Cottages, Southern Homes and Play Rooms



BENNETT *Fresh-Aire* FIREPLACE UNIT

Fresh air, from *outdoors,* is heated and circulated thruout the room. No loss of expensive furnace heat up the chimney . . . no cold, unhealthy floor drafts—and *no smoke!*

The unit *cannot* interfere with the traditional beauty of the fireplace—it's hidden within the masonry. . . . Easier and quicker to build. Mantel may be designed with complete freedom.

BENNETT *Warm-Aire* FIREPLACE UNIT

Draws cool air from *floor level,* heats and recirculates it . . . *throughout the whole room!* Keeps air fresher. Furnishes a complete form for the mason—saves your customers' construction and operation costs. . . No smoke. Adaptable to *any* mantel design.

EVERY FIREPLACE OWNER WANTS . . .

Flexscreen SAFETY FIREPLACE CURTAIN

Write us for FREE FIREPLACE CATALOG at 417 Pine Street.

BENNETT-IRELAND INC.

Chartered in 1906

NORWICH, NEW YORK

Books - - -

WOOD CONSTRUCTION, PRINCIPLES, PRACTICES, DETAILS. By D. F. Holtman. This work is a project of the National Committee on Wood Utilization, and was prepared under the direction of a central committee of ten distinguished engineers and architects. It is a comprehensive text and reference book on wood and its use in construction, containing authoritative information regarding the mechanical properties and uses of wood in general and of the various species in particular. Bound in cloth, 711 pages. **Price, delivered, $6.50.**

STEEL SQUARE POCKET BOOK. By D. L. Stoddard. A practical and handy treatise giving best methods of using the carpenter's steel square for laying out figures and roofs, finding roof pitches and cutting rafters. Cloth, 181 pages. **Price, delivered, $1.25.**

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FULL LENGTH ROOF FRAMER. By A. F. J. Reichers. A vest pocket book of 115 pages giving on facing pages the entire length to ⅛-inch of the common, hip, valley, and jack rafters for 48 different pitches. Bound in cloth. **Price, delivered, $2.25.**

CARPENTRY. By Gilbert Townsend. A practical treatise for carpenters and woodworkers on simple building construction, including framing, roof construction, general carpentry work, and exterior and interior finish of buildings. **Price, delivered, $2.50.**

PRACTICAL PLANS FOR MODERN HOMES. New 36 page booklet, size 8½x11 inches. Contains 51 actual photographs and floor plans of real houses that have been built and proved successful . . . plus dozens of helpful ideas on selecting the lot, choosing the proper home design and arranging finances. Blue prints and specifications of every design are available at only $5.00 per set. Special prices on quantity lots of these booklets to dealers. Single copies only 50c.

MODERN STORE & YARD DESIGN MANUAL. Actual Store Designs. Planning helps. Yard Planning ideas, 11 original store plans. Yard layouts. How to display merchandise. 68 pages of valuable information and only 50 cents.

GRADING RULE BOOKS

Standard Grading and Dressing Rules for Douglas Fir; Stika Spruce, West Coast Hemlock, Western Red Cedar, 50 cents.

Standard Grading Rates for Ponderosa Pine, Sugar Pine, Idaho White Pine, Lodgepole Pine, Larch-Douglas Fir, White Fir, Engelmann Spruce, Incense Cedar, Red Cedar Lumber, 50 cents.

Standard Grading Rules for Northern Pine, Norway Pine, Jack Pine, Eastern Spruce, Western White Spruce, Balsam, Tamarack, Aspen, 50 cents.

Standard Specifications for Southern White Pine Lumber, 50 cents.

Rules for the Measurement and Inspection of Hardwood Lumber, Cypress, Veneers and Thin Lumber, 50 cents.

American Lumberman & Building Products Merchandiser
139 N. Clark St. Chicago 2, Illinois

Heating, Plumbing, Air Conditioning

( ) Oil Burners
  ( ) Pot-Type
  ( ) Pressure
  ( ) Rotary
( ) Oil Burning Circulators

Accessories (Plants & Systems)

( ) Aluminum Ducts & Pipes
( ) Asbestos Paper Sheets
( ) Boiler Cleaning Compound
( ) Boiler Sealers
( ) Clinker Tongs
( ) Cold Water Paste
( ) Connectors
( ) Damper Controls
( ) Duct
( ) Furnace Cement
( ) Furnace Fittings
( ) Galvanized Hot Water Tanks
( ) Pipe Insaultion
( ) Plastic Fire Brick
( ) Radiators
( ) Registers
( ) Soot Chasers
( ) Steel Floor Chasers
( ) Steel Wall Registers
( ) Transfer Registers
( ) Oil Burning Radiant Heaters
( ) Portable Electric Heaters
( ) Radiant Heating Systems
  ( ) Base Board Type
  ( ) Panel
  ( ) Solar
( ) Wall Heaters
( ) Smokeless Stoves
( ) Space Heaters
( ) Stoves
( ) Wood Burners

Water Heaters

( ) Automatic
( ) Ball Type Automatic Gas Fired
( ) Cast Iron
( ) Coal Fired
( ) Copper Coil Side-Arm
( ) Electric
( ) Gas Fired
( ) Oil Fired

Stokers

( ) Ray Feed Type
( ) Worm Feed Type

Air Conditioning Equipment

( ) Air Cleaning Equipment
( ) Air Filters
( ) All Year Gas Air Conditioner
( ) Blowers
( ) Coal Fired
( ) Combined Heating & Air Conditioning
( ) DeHumidifier
( ) Dust Precipitators
( ) Fans
( ) Gas Fired
( ) Humidifiers
( ) Individual Room Conditioners
( ) Oil Fired
( ) Plug-in Type Room Units
( ) Room Coolers
( ) Ventilators
( ) Year Around Air Conditioners

Air Conditioning For:

( ) Beauty Shop
( ) Commercial Buildings
( ) Homes
( ) Hospitals & Institutions
( ) Industrial Plants
( ) Offices
( ) Restaurants
( ) Stores
( ) Taverns
( ) Theatres

Louvres

( ) Box France Type
( ) Flange Type
( ) Utility Cores

A recent innovation to the mechanical equipment of the small home which is destined to play a magnificent part in the industry's future as the so called utility unit which combines kitchen, bathroom and laundry equipment in a single "packaged" unit.

The economies are obvious. This type of unit lends itself especially to the dealer controlled packaged sale of the complete home.

Heating and Temperature Controls

( ) Aquastats
( ) Automatic Room Temperature Control
( ) Clock Thermostats
( ) Personalized Heat Controls (for ——— family units)
( ) Regulators
( ) Thermostats
  ( ) Furnacestats
  ( ) Airstats

It is estimated that one home buyer in three will demand automatically controlled heat in his new home. To supply this **demand** is an important sales opportunity for the dealer—but with the indicated consumer interest it is also an opportunity for **creative** merchandising.

Foot-note: Don't say furnace when you mean boiler. In the heating industry the term "furnace" is applied to the combustion unit in the basement that burns the fuel and transfers the heat to **air** which is circulated through ducts.

The term boiler is used to describe the unit which produces either hot water for a hotwater heating system or steam for a steam heating system.

In a furnace the heat is transferred from fuel to air; in a boiler from the fuel to water or steam. Warm air is usually distributed by ducts, steam and hot water by pipes, but some of the newer systems combine the two methods.

Sales Items

Fireplaces

Families who save for years to acquire a house and garden of their own invariably dream of evenings around the fireplace and hearth of their own home.

In fact the word "home" brings to the mind of most people a comfortable living room with a cheery fire burning on the hearth.

That is why the majority of home seekers put fireplaces high on the list of essential specifications.

Fireplaces traditionally are tricky thinks to hold and install but fortunately several reputable manufacturers of fireplace equipment have mastered the art of constructing fireplaces so that it might be called a science.

For the dealer who would satisfactorily serve his home building market a distributary hook-up with a reliable manufacturer of fireplace products is essential.

( ) Metal units — including fire-box, throat damper down draft shelf and smoke dome.
( ) Complete supplies for custom-built fireplaces.

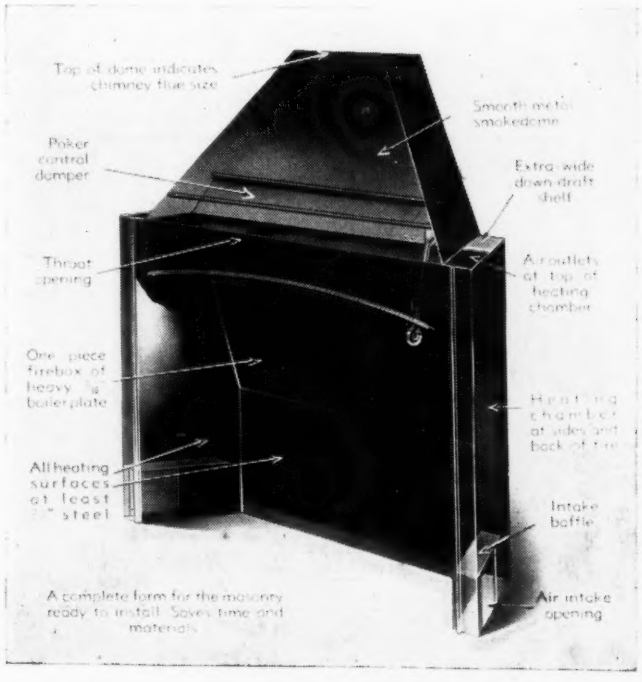
Fireplace Accessories

( ) Andirons
( ) Ashdump
( ) Ash Pit Doors
( ) Bellows
( ) Brick
( ) Broiling Forks
( ) Brush
( ) Charcoal Stoves
( ) Chimney Tops
( ) Clean Out Doors
( ) Craves
( ) Dampers
( ) Dome Dampers
( ) Dutch Ovens
( ) Electric Fan Grilles
( ) Fire Baskets
( ) Firebrick
( ) Flue Linings
( ) Flues
( ) Fuel Containers
( ) Grilles
  ( ) Cast Iron
  ( ) Louvre
( ) Lighters
( ) Log Rests
( ) Mantels
( ) Poker
( ) Registers
( ) Screens
  ( ) Curtain
  ( ) Folding
( ) Shovels
( ) Spet
( ) Spark Arresters
( ) Steak Grill
( ) Steel Angles
( ) Tile
( ) Tongs

Room Sizes Supplies

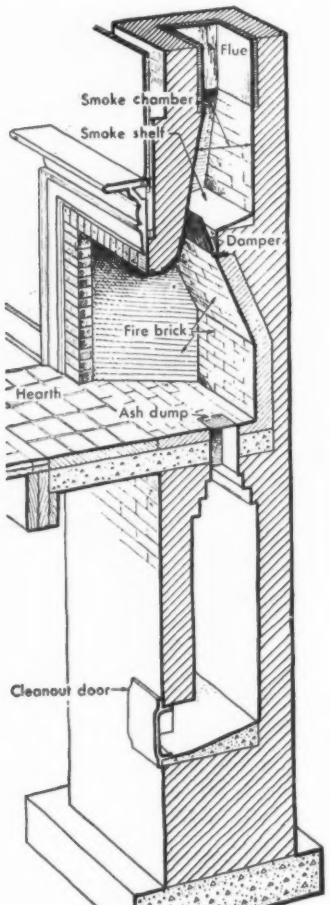
10x14 ( ) Short Wall ( ) Long Wall
12x16 ( ) Short Wall ( ) Long Wall
12x20 ( ) Short Wall ( ) Long Wall
12x24 ( ) Short Wall ( ) Long Wall
14x28 ( ) Short Wall ( ) Long Wall
16x30 ( ) Short Wall ( ) Long Wall
20x30 ( ) Short Wall ( ) Long Wall

( ) Outdoor Fireplaces

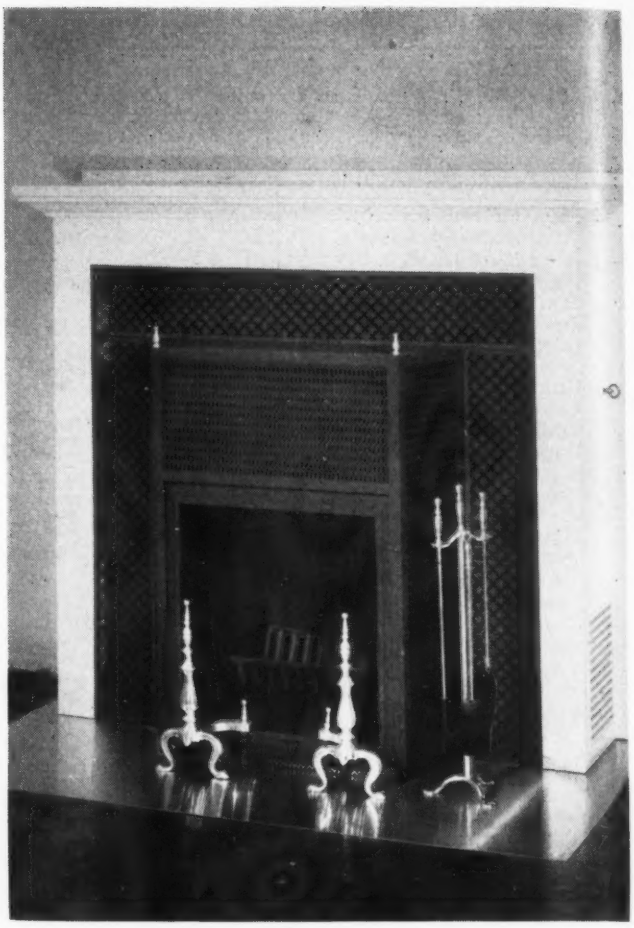

Top of dome indicates chimney flue size
Smooth metal smokedome
Poker control damper
Extra wide down-draft shelf
Throat opening
Air outlets at top of heating chamber
One piece firebox of heavy ⅜ boilerplate
All heating surfaces at least ¼" steel
Intake baffle
A complete form for the masonry ready to install. Saves time and materials
Air intake opening

Complete fireplace form ready for masonry and installation.

Additional information. The leading manufacturers of fireplace units and equipment have exceptional informative literature on fireplace problems which the dealer should have on file. Dealer should also secure from U. S. Department of Agriculture "Farmers Bulletin No. 1889 entitled "Fireplaces and Chimneys" and report No. 2566 from Anthracite Industries, Primos, Delaware county, Pennsylvania.



DIMENSIONS												
FINISHED FIREPLACE OPENING							ROUGH BRICK WORK					
WIDTH	HEIGHT	DEPTH	BACK	VERTICAL BACK WALL	SLOPED BACK	THROAT	WIDTH	DEPTH	SMOKE CHAMBER	SLOPE of SMOKE CHAMBER	STD RECTANGULAR FLUE LINING Outside Dimension	STD ROUND FLUE LINING Inside Dia
A	B	C	D	E	F	G	H	I	J	K	L M	Φ
In.	In.	In.	In.	In	In	In	In	In	In	In	In × In	In
26	24	16	13	14	14	8¾	39	20	24	15	8½×8½	10
28	28	16	15	14	18	8¾	42	20	25	14½	8½×13	10
30	30	16	17	14	20	8¾	42	20	25	14½	8½×13	10
32	28	16	19	14	20	8¾	44	20	26	15½	8½×13	10
34	28	16	21	14	20	8¾	46	20	28	16½	8½×13	12
36	30	16	23	14	20	8¾	46	20	28	16½	13×13	12
40	30	16	27	14	20	8¾	50	20	32	18½	13×13	12
42	30	16	29	14	20	8¾	54	20	35	20½	13×13	12
48	33	18	33	14	23	8¾	59	22	40	23	13×13	15
54	36	20	37	14	26	13	67	24	42	24½	13×18	15
60	39	22	42	14	29	13	71	26	45	26½	18×18	18
72	40	22	54	14	30	13	83	26	56	32½	18×18	18



Combination fireplace, forced air furnace and air conditioner.

How to Figure Attic Louver Requirements

Attic ventilation as a means of exhausting excessive humidity and accumulated heat has recently received much attention in research by universities, trade associations and equipment manufacturers. Certain basic facts have been established: among them, that surprising efficiency can be obtained from relatively small openings if they are properly positioned—to permit cross ventilation and to induce circulation of outside air through the attic.

Based on these experiments, a basic ratio of 65 square inches or more opening to every 500 sq. ft. roof area is suggested. To facilitate free air movement under both windy or calm conditions, louvers should be placed, where feasible, to permit cross ventilation from all directions.

In high attics (of 6 ft. or more from floor to ridge) it is also recommended that louvers be installed with exhaust louvers at ridge matched in opening area and by intake louvers at floor level.

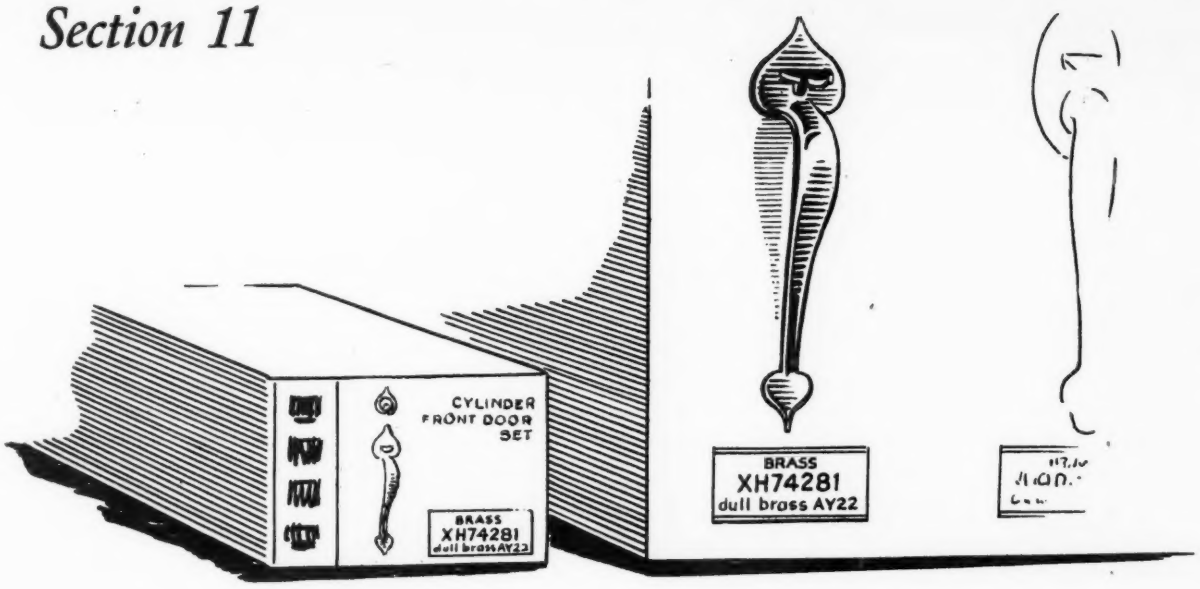
In flat roof buildings (apartments, duplex homes, etc.), where there is no attic, but a dead air space, it is suggested that vertical louvers be placed in the four side walls surrounded this area. If humidity exhaustion is the only consideration, only two louvers are required. In figuring for flat roofed buildings, the basic ratio of 65 sq. ft. of opening to 500 sq. ft. should be carried out.

Placement of Louvers in Roof

Always provide cross ventilation or an equal exhaust opening for every air inlet in order to take advantage of all outside air movement and to prevent the creation of any back pressure that reduces louver operating efficiency.

Wherever possible balance openings near floor level with openings at ridge. The greater the difference in height between the upper and lower louvers the greater will be the induced air movement. (The higher the "chimney," the greater the draft.)

Section 11



Hardware & Related Items

The retail building material dealer has become a natural channel of distribution for builders' hardware into the light construction market. This development, now accepted by all echelons of the construction business from manufacturer to builder, is the result of logical evolution. Chief factor in this evolution has been the trend for the wide-awake merchant to broaden his line to cover a broader area of service. Because no two lines are more closely related than mill-work and hardware—hardware must fit the mill-work; they are installed together—it was inevitable for the building material dealer to include hardware in his line of products.

Another factor, in part determined by F.H.A. home financing, was the need for "a home-building headquarters", a place in the community with a variety of building materials, together with displays, models and plans of homes—a place where husband and wife could shop together to buy a new home. To satisfy this community need, the retail building material dealer became the single source of all construction items necessary for home-building. Under these conditions, the dealer thus became the retail source of builders' hardware for the small homes market.

Confronted now with an unprecedented demand for builders' hardware products, the alert dealer will want to meet this demand in the most service-rendering, profit-wise manner. To do so, the retail building material dealer will have to apply the most effective merchandising and selling methods.

Builders' Hardware falls into two classes: Contract Builders' Hardware and Stock Builders' Hardware.

Contract Builders Hardware is sold from plans for a lump sum price and is "tailor-made" after purchase. An extensive business of this type requires a sample room and the services of an expert to manage the department.

Stock Builders' Hardware consists of a limited variety of patterns and finishes, produced in volume and carried in stock by retailer, wholesaler and manufacturer.

The retailer can establish conditions that will make the selling of Stock Builders' Hardware a profitable part of his business without a specialist on his payroll. These successful conditions are:

1. An active stock, in size proportionate to the market.
2. A suitable source of supply—a single, nearby source if the market is small because fast turnover is the most important factor in profit.
3. Nationally-advertised quality lines — well-known brands are easy to sell.
4. Every item displayed, labelled, shelved and boxed so that anyone can sell it.
5. A greater selection available—a sample room in a nearby trading-center and a mail-order type of catalog.
6. Expert help on call, to assist with special jobs, to advise in operation of builders' hardware department.

CONTENTS OF THIS SECTION

Locks
Hinges
Hardware Metals
Door Closers
Cabinet Hardware
Screen Door Hardware
Window Hardware
Bolts
Door Stops and Holders
Sliding Door Hardware
Tools
Tool Rentals
Stove Pipes

Miscellaneous Hardware and Impulse Merchandise
Nails, Screws, Bolts and Nuts

For Related Sections See Master Index

WHAT TO STOCK

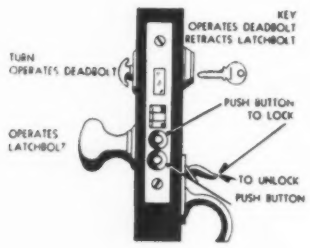
An ideal stock of hardware is 1/5 of yearly sales. The average dealer sells the hardware for 40 houses per year. To serve this market alone, his stock should consist of hardware for 8 front doors, 8 back doors, 8 bathroom doors, 24 bedroom doors, etc.

As a practical matter, it must be recognized (a) that fashion, taste and buying habits are not alike in all parts of the country, (b) that quantities must be adjusted to customary packing and (c) that for many months variety will be limited.

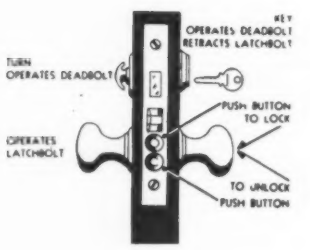
The model stock listed on the following pages is based on the needs of an average dealer under present day conditions. Any dealer can, in consultation with his supplier, tailor this "model stock" to the requirements of his market.

LOCKS

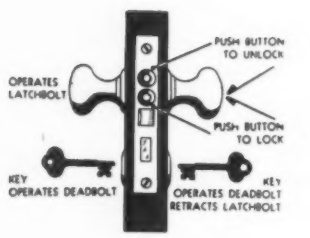
Front Door Locksets are made especially for front doors of homes. They are, however, best for back doors, too. One type has a knob outside, the other an entrance handle. Either or both latchbolt and deadbolt may be locked. This wide range of operations gives the home-owner the maximum in convenience and security.



Sets	Fin.
2	Selected Pattern — Dull Brass
Sets	Fin.
2	Selected Pattern — Dull Brass
Sets	Fin.
1	Hammered Pattern — Half Polished

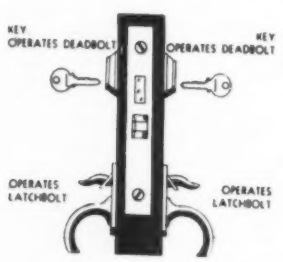


Sets	Fin.
1	Skeleton Trim — Dull Brass
Sets	Fin.
1	Modern Design — Dull Brass
Sets	Fin.
2	Broad Bevel — Dull Brass



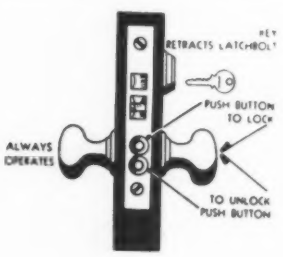
Sets	Fin.
4	Steel, Broad Bevel — Dull Brass

Store Door Locksets are available either with or without buttons in the face of the lock. The latter is more popular because all locking is key controlled, an important consideration on doors accessible to the public.



Sets	Fin.
2	Sectional Modern — Dull Chrome
Sets	Fin.
2	Modern with Plate — Dull Chrome
Sets	Fin.
2	Broad Bevel — Dull Brass

Office Door Locksets, standard equipment for office doors, are also useful for doors of storerooms, closets, etc. Made in two types, one for doors opening inward and the other for door opening inward or outward. The latter has a small latch that deadlocks the latchbolt so it cannot be pried back.



For Doors Opening Inward

Sets	Fin.
2	Broad Bevel — Dull Brass

For Doors Opening Inward or Outward

Sets	Fin.
2	Broad Bevel — Dull Brass

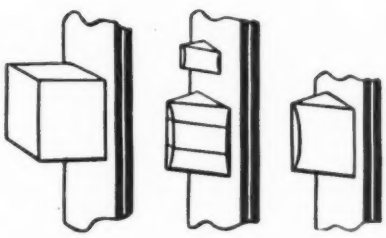
HOW TO USE SCHEDULE

In consultation with his supplier, a dealer can "tailor" this "model stock" to his needs.

LOCK SECURITY

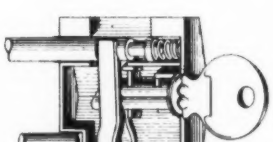
The security provided by a lock depends on the size and type of its bolts as well as the type of key and locking mechanism.

There are three types of lock-



bolts: Deadbolts, springlatches and deadlatches. Deadbolts are positively locked — both when projected and retracted. A deadlatch has, in addition to a springlatch, a small latch which deadlocks the latchbolt against end pressure.

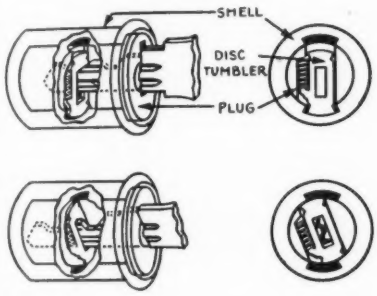
WARDED LOCKS



Warded locks are the cheapest type. Their construction is such that cuts in the proper key will clear wards in the lock, thus actuating the bolt. Generally made with only 6 key changes, every sixth lock has the same key, no matter how many are in use. Do not depend upon them for real security; use them only for maintaining privacy. Their chief use is for inexpensive padlocks.

DISC-TUMBLER LOCKS

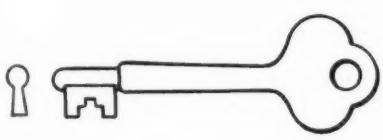
Disc-tumbler locks are widely used in the automotive industry. This has brought them into general use because of their similarity in appearance to pin-tumbler cylinders and keys. If well-made it affords fair security, but not the security obtainable with well-built lever-tumbler or pin-tumbler locks.



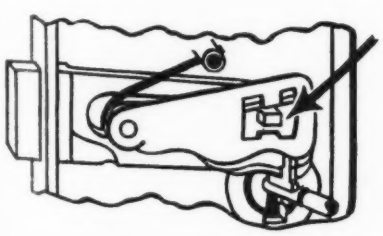
The proper key (lower) aligns the disc-tumblers, bringing them within the diameter of the plug, which may then be turned to operate the bolt.

This mechanism is used principally in padlocks, cabinet locks, automotive locks and vending machine locks.

BIT-KEY LOCKS



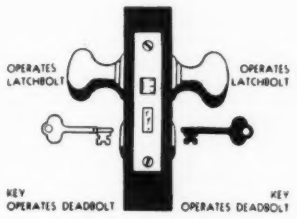
This type affords security ranging from poor to excellent, the degree of security depending on the type and number of tumblers employed.



The key lifts the tumblers, aligning their gates so that the pin on the bolt can pass through.

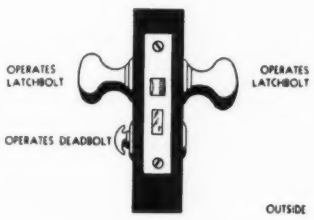
Bit-key locks are used for inside doors of houses.

Conventional Inside and Bathroom Locksets. The bit-key type of lever-tumbler lock is called an inside lock because its chief use is for inside doors of houses. The bathroom lock, best suited for bath and bedroom doors of homes, is locked and unlocked on the inside of the room by an attached turn knob and, in an emergency, can be unlocked from the outside with a nail-file or scissors.



Inside Lockset

Sets	Fin.	
12	Skeleton Trim—Brass	Dull Brass
12	Skeleton Trim—Steel	Dull Brass
12	Modern Design—Brass	Dull Brass
12	Modern Design—Steel	Dull Brass
30	Broad Bevel—Steel	Dull Brass

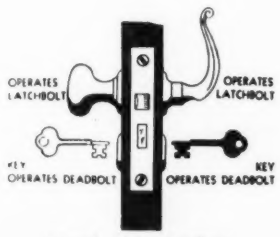


Bathroom Lockset

Sets	Fin.	
2	Skeleton Trim—Brass	(a) Dull Brass
2	Skeleton Trim—Steel	(b) Dull Brass
2	Modern Design—Brass	(a) Dull Brass
2	Modern Design—Steel	(b) Dull Brass
3	Broad Bevel—Steel	(b) Dull Brass

(a) Pol. Chrome inside
(b) Pol. Nickel inside

French Door Locksets are for doors with narrow stiles.



French Door Lockset

Sets	Fin.	
2	Brass	Dull Brass
2	Steel, plated	Dull Brass

Tubular Locksets are popular with carpenters because they are easy to install. Good quality tubular locks are excellent for inside doors of homes but, since they do not have deadbolts, they obviously cannot have the variety of functions found in conventional mortise locks.

Latchset

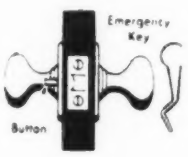
Sets	Fin.	
12	Selected Design—Brass	Dull Brass
12	Selected Design—Steel	Dull Brass
12	Selected Design—Brass	Dull Brass
12	Selected Design—Steel	Dull Brass

"I give a good hang with Three Hinges"
STANLEY
VISIBLE Mark of Good Construction
STANLEY
THE STANLEY WORKS, NEW BRITAIN, CONNECTICUT
REMEMBER . . . . . THREE HINGES TO A DOOR

BEDROOM LOCKS

Bedroom Lock

Sets	Fin.	
12	Selected Design—Brass	Dull Brass
12	Selected Design—Steel	Dull Brass
12	Selected Design—Brass	Dull Brass
12	Selected Design—Steel	Dull Brass

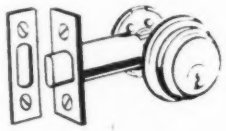


Bathroom Lock

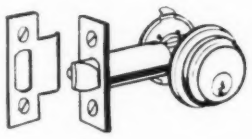
Sets	Fin.	
3	Selected Design—Brass	(a) Dull Brass
3	Selected Design—Steel	(b) Dull Brass
3	Selected Design—Brass	(a) Dull Brass
3	Selected Design—Steel	(b) Dull Brass

(a) Pol. Chrome inside
(b) Pol. Nickel inside

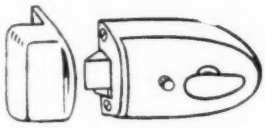
Auxiliary Locks are chiefly used to obtain additional security on existing doors. Sometimes they are used to obtain good security at low cost on new work.



Set	Fin.
Tubular Deadlock	Dull Brass



Set	Fin.
Tubular Deadlatch	Dull Brass



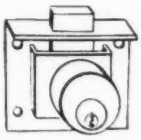
Merchandiser Assortment

Extra Stock Nightlatches

Padlocks. More padlocks are sold than any other type of lock. Since impulse buying is an important factor in their sale, they should be prominently displayed.

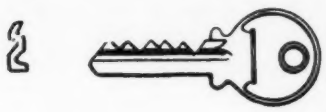
1	Merchandiser Assortment—Popular-priced
6	Super Pin-Tumbler—1¾" Size

Cabinet Locks are a good staple item. Display them.

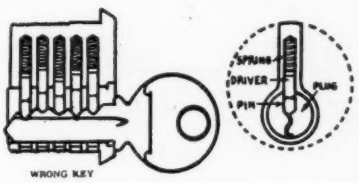


Merchandiser Assortment

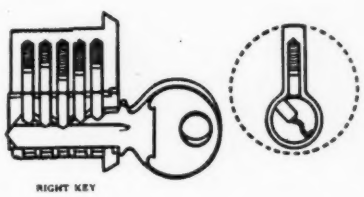
PIN-TUMBLER LOCKS



Pin-tumbler locks are the most secure of all key-operated locks. They are also best when master-keying is desirable.



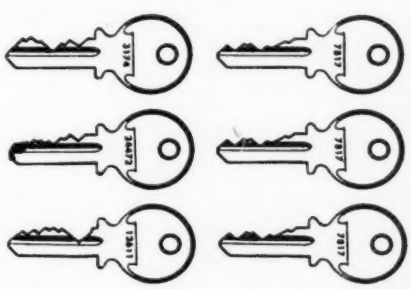
Wrong Key. Here the pins and drivers are in irregular positions, forming obstructions which prevent rotation of the plug.



Right Key. The proper key lines up the pins and drivers at the intersection of the plug and shell so that the plug may be turned to operate the lock.

KEYING

Most locks can be keyed any one of three ways:



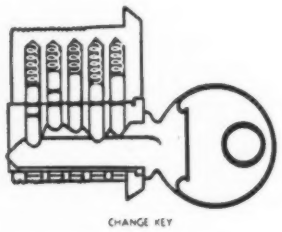
(1) All different, each key opening only one lock.

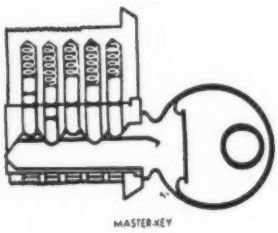
(2) All alike, any key of the group opening all locks.

(3) Masterkeyed. In addition to keys 1 and 2 above, there is a masterkey which operates all locks.

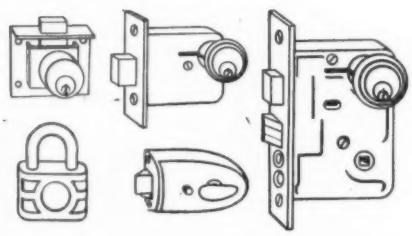
MASTERKEYING

A lock is built to fit its key. For this reason, a lock can be masterkeyed only at the factory or by a competent locksmith.



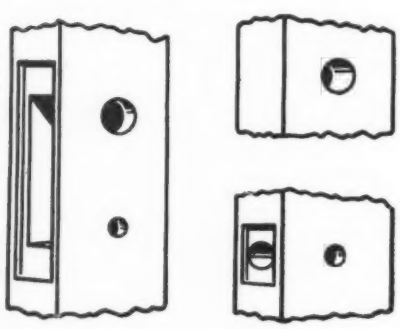


This is how a pin-tumbler lock is masterkeyed. Note the last two pins are made in two parts. The change-key lifts one of these parts to the intersection between the plug and shell; the masterkey lines up the other part.

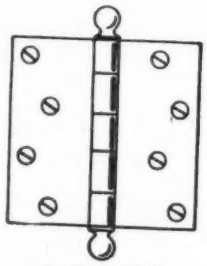


Locks having the same key number can be keyed together.

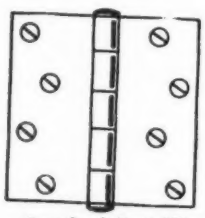
INSTALLATION



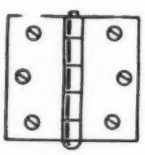
Locks may be classified by method of installation as mortise, tubular and rim types. Generally, the first should be chosen for security, the second for ease of installation and the third for additional security on existing doors.



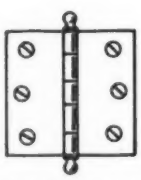
Standard Butt Hinge



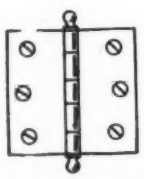
Standard Butt Hinge



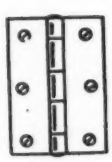
Broad Butt Hinge



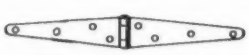
Cabinet Butt Hinge



Cabinet Butt Hinge



Narrow Butt Hinge



Light Strap Hinge

BUTT HINGES

....Pr.....Size 3 x 3
12 Steel, Plated—Dull Brass

....Pr.....Size 3½ x 3½
50 Steel, Plated—Dull Brass

....Pr.....Size 4 x 4
12 Steel, Plated—Dull Brass

....Pr.....Size 3½ x 3½
12 Steel, Plated—Nickel

....Pr.....Size 3 x 3
12 Steel, Primed

....Pr.....Size 3½ x 3½
50 Steel, Primed

....Pr.....Size 4 x 4
12 Steel, Primed

....Pr.....Size 2½ x 2½
12 Plain Steel

....Pr.....Size 3 x 3
12 Plain Steel

....Pr.....Size 3½ x 3½
12 Plain Steel

....Pr.....Size 2½ x 2½
24 Steel, Plated—Dull Brass

....Pr.....Size 2½ x 2½
24 Steel, Plated—Nickel

....Pr.....Size 2½ x 2½
24 Steel, Primed

....Pr.....Size 2½
24 Plain Steel

....Pr.....Size 3
24 Plain Steel

STRAP AND TEE HINGES

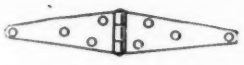
....Pr.....Size 3
12 Plain Steel

....Pr.....Size 4
12 Plain Steel

....Pr.....Size 5
12 Plain Steel

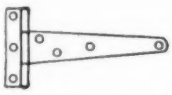
....Pr.....Size 6
12 Plain Steel

STRAP AND TEE HINGES, CONT'D.



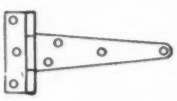
Heavy Strap Hinge

....Pr.....Size 4
12 Plain Steel
....Pr.....Size 5
12 Plain Steel
....Pr.....Size 6
12 Plain Steel



Light Tee Hinge

....Pr.....Size 3
12 Plain Steel
....Pr.....Size 4
12 Plain Steel
....Pr.....Size 6
12 Plain Steel
....Pr.....Size 8
12 Plain Steel



Heavy Tee Hinge

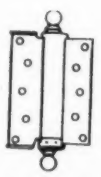
....Pr.....Size 6
12 Plain Steel
....Pr.....Size 8
12 Plain Steel
....Pr.....Size 10
6 Plain Steel

Hinge Hasp

....Only.....Size 3½
12 Plain Steel
....Only.....Size 4½
12 Plain Steel
....Only.....Size 6
12 Plain Steel

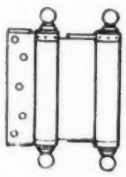
Pantry Hinge

....Only.....
2 Dull Brass
....Only.....
1 Adjustable Tension, Dull Brass



Single Acting Spring Hinge

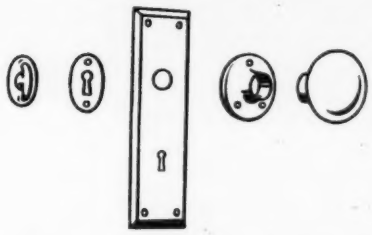
....Pr.....Size 5
3 Dull Brass



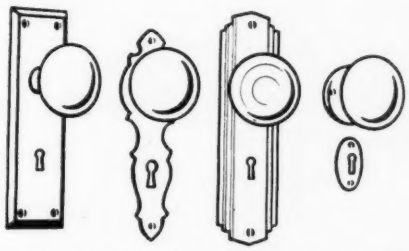
Double Acting Spring Hinge

....Pr.....Size 5
1 Dull Brass

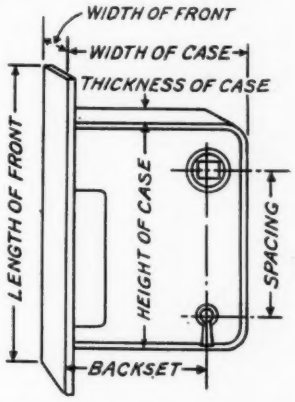
NOMENCLATURE



(L to R) — Turn knob and plate, key plate, escutcheon, knob rose and knob.

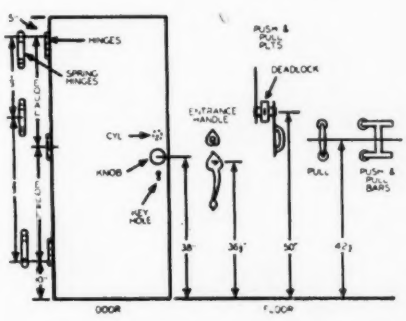


(L to R)—Broad bevel, skeleton, modern and sectional lock trim.



When giving hardware dimensions, state first the vertical dimension, then the horizontal dimension.

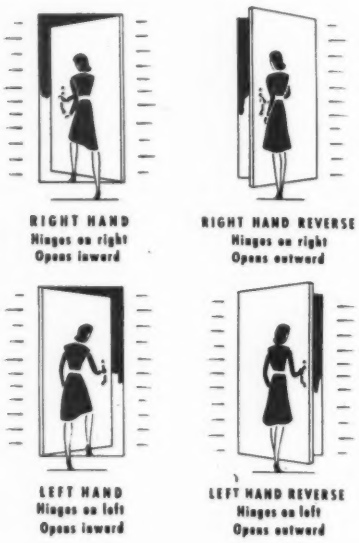
LOCATION OF HARDWARE



The locations indicated are customary for commercial buildings. For residences, elementary schools, etc., knobs should be about 2 inches lower. It is important that door closers be installed exactly as shown by the template packed with them.

HANDED HARDWARE

Many items of hardware are so constructed that they must be manufactured as assembled to conform to the hand of the door. Such hardware differs in some respects for doors hung to different sides of the door frame, or for doors opening inward and outward. Hardware is (1) **Handed,** if it must be made for the proper hand, (2) **Reversible,** if it may be changed to the proper hand, and (3) **Universal,** if it fits doors of any hand without change.



Face the outside of a door in order to determine its hand.

HINGE SIZES

CHART SHOWING SIZES OF HINGES

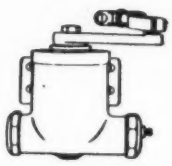
Thickness (In Inches)	Door Widths (In Inches)	Hinge Heights (In Inches)
¾ to 1⅛ cabinet doors		2½
⅞ to 1⅛ screen or combination doors		3
1⅜ doors		3½
1¾ doors	To 36	4
	Over 36 to 40	4½
	Over 40	5
2, 2¼ and 2½ doors		5
Transoms and casements		
1⅜ and 1¾		3
2, 2¼ and 2½		3½

Two dimensions are needed to describe standard butt hinges: The first is the length of the joint (not including the tips), the second is the width when open.

Only one dimension (the height) is given for narrow mortise hinges and for half surface, half mortise and full surface butt hinges.

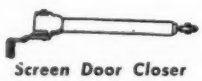
The size given for strap and tee hinges is the length of the strap.

DOOR CLOSERS



Door Closer

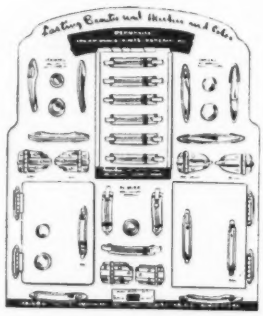
....Only.....Door Closers....
2 Size 3
....Only.....Door Closers....
2 Size 4



Screen Door Closer

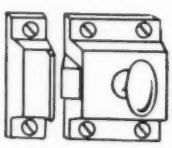
....Only.....Screen Door Closers...

CABINET HARDWARE



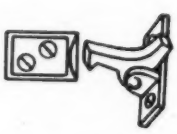
Merchandiser

....Only.....
1 Merchandiser Assortment



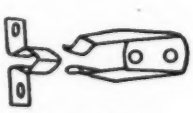
Cupboard Catch

....Doz. .....Fin.....
1 Iron, Plated
....Doz. .....Fin.....
1 Iron, Plated



Elbow Catch

...Doz. .....Fin.....
3 Iron, Plated Nickel



Friction Catch

....Doz.....
2 Steel, Blued

Drawer Pull

....Doz. .....Fin.....
Brass Dull Brass
....Doz. .....Fin.....
Brass, Plated Pol. Chrome

Coat & Hat Hook

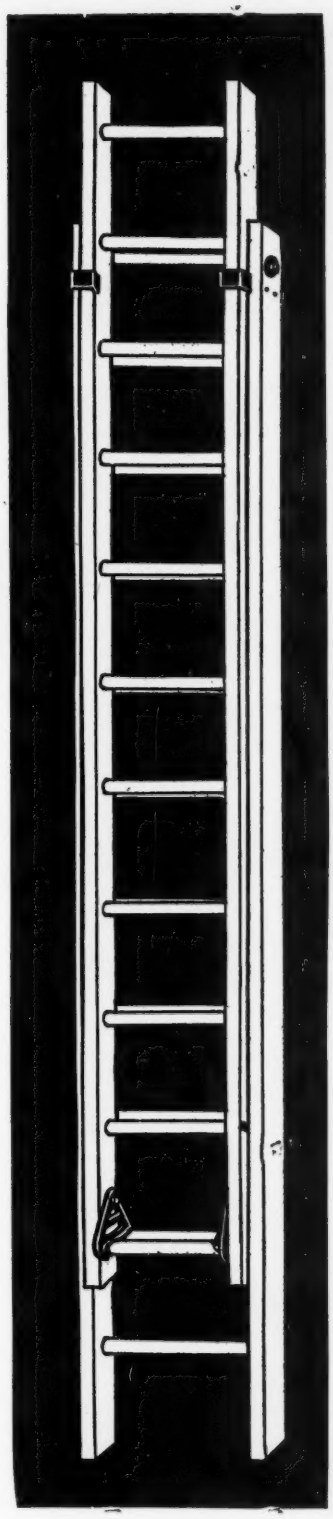
....Doz. .....Fin.....
6 Iron, Plated Nickel

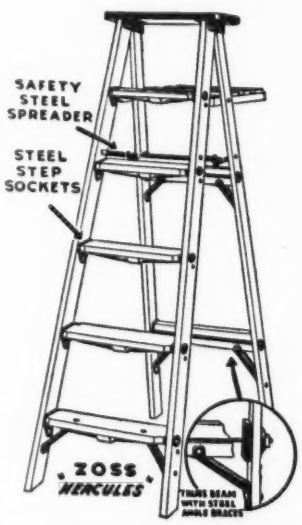
Step Up Sales and Profits with

ZOSS LADDERS

EVERY LADDER TESTED FOR SAFETY AND STRENGTH

HOUSEHOLD, PAINTERS, INDUSTRIAL EXTENSION AND STEP LADDERS





THIS is the ladder line that will never let you down. These are the TESTED ladders that are insured and guaranteed. Tough and rugged, strongly constructed; made where the lumber is produced, they have QUALITY through and through.

ZOSS ladders are NEEDED on farms, in homes, factories, stores, schools, hospitals and hotels. Needed on nearly every job of construction, maintenance and repair. Sell ZOSS ladders with orders for lumber and building material.

For complete information write, DEPT. A-L, ZOSS LADDER & MFG. CO., 4901 S. W. Macadam Ave., Portland, Ore.

TWO LADDERS IN ONE

It's easy to separate and use each section as a single straight ladder.

EASILY ADJUSTED

Top section slides quickly to any desired height. Held rigid and safe by steel hooks.

COMPACT

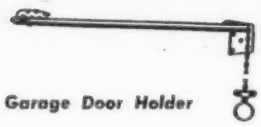
Easy to store in basement, garage or other small space.

ZOSS LADDER & MFG. CO.

4901 S. W. Macadam Ave.,

Portland 1, Ore.

GARAGE DOOR HARDWARE



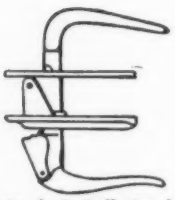
Garage Door Holder

....Pr.....Garage Door Holders
3

Garage Door Sets

....Sets.....Garage Door Sets
2 Hinged Type
....Sets.....Garage Door Sets
1 Swing-up Type

SCREEN DOOR HARDWARE

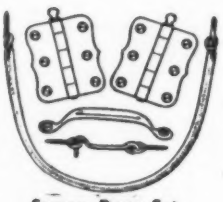


Push & Pull Catch

....Only.....Fin.....
Push & Pull Type Dull Brass

Tubular Catch

....Only.....Fin.....
Bore-in Type Dull Brass



Screen Door Set

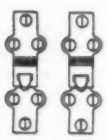
....Doz.....Snappy Catches
1
....Doz.....Screen Door Sets—
1 Dull Brass

Snappy Catch

....Doz.....Screen Door Sets—
1 Japanned

Screen Hangars

....Doz. Sets.....Screen Hangers
6



Storm Sash Hangars

....Doz. Pr.....Storm Sash Hangers

Storm Sash Holders

....Doz. Sets....Storm Sash Holders
1

NOTES ON HINGES

Ball bearing hinges should be used on doors used frequently and doors having door closers.

Hinges for doors that open outward should have pins that cannot be removed when the door is closed.

Recommend three (3) hinges to a door. This gives the owner longer wear, less binding and warping. It gives you a 50% bigger sale.

Straps and tees can be bought either in bulk less screws or one pair in a box withscrews.

HARDWARE METALS

Aluminum, the lightest of the metals used in builders' hardware, is excellent for keys and if aluminited makes good push bars, pulls and other surface hardware.

Brass, an alloy of copper and zinc, is yellow in color. This is the best metal for hardware of homes.

Bronze, an alloy of copper and tin, is reddish in color. Hardware for commercial buildings is generally made of bronze.

Iron is used for hardware in three forms: (1) Gray cast iron for lock cases, door closers, etc., (2) Malleable cast iron for door closer irons and other parts that are subject to shock, and (3) Steel for lock and hardware parts. In addition, inexpensive knobs, escutcheons and sash hardware are made of iron and steel and often plated to resemble brass.

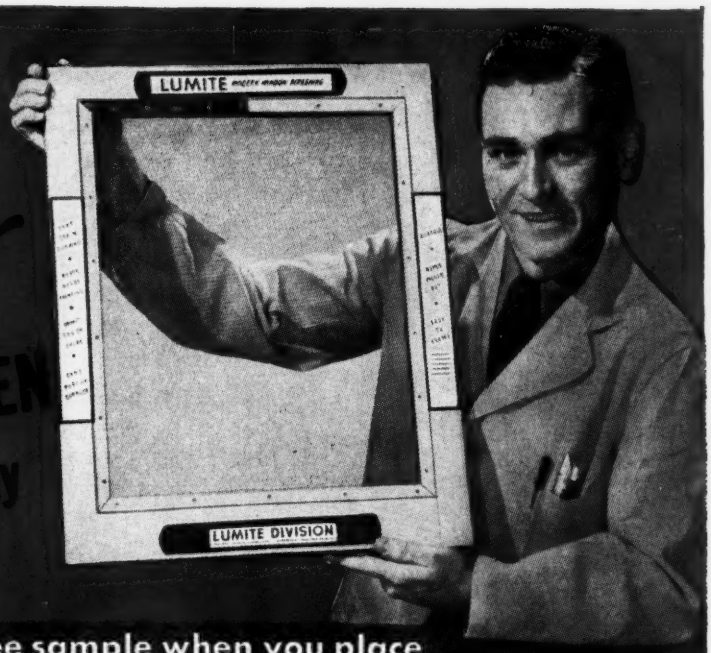
Nickelene, an alloy of copper, tin and nickel, is silvery white in color. The chief use of this metal is for keys.

FORMS OF METAL

Hardware is produced from many different forms of metal, the most common of which are cast, wrought, forged, drawn and extruded. A casting is formed by pouring molten metal into molds. Wrought metal is produced by rolling the metal until it is the desired thickness. Forging is the art of shaping metals in the solid state by blows or pressure. Drawn metal is produced from rolled or extruded stock by pulling it through dies to form rods, tubes or wire. Extrusion is the process of forcing metal in the plastic state through a hardened steel die of the desired cross-section, much as a tooth-paste is squeezed from a tube.

FREE! with your order

FRAMED LUMITE SCREEN for sure-selling store display



Ask your wholesaler for this free sample when you place your next order or if you now have a stock of Lumite

SHOWS HOW LUMITE ACTUALLY LOOKS IN USE!

21" x 21" model in handsome wood frame. Lets your customers see what a nice tight framing job they can expect with Lumite! Lets them see how attractive it will look on the windows, doors and porches of their homes. A label on the frame tells Lumite's big selling points: "Can't stain sidewalls—never needs painting—won't sag or bulge—can't rust or corrode."

CUTAWAY SECTION SHOWS PROPER FRAMING METHOD!

Takes the mystery out of screen framing! Shows customers at a glance just how and where to tack Lumite securely for maximum effectiveness. Easy-to-follow directions printed right on edge of frame.

SAVES YOUR TIME—ANSWERS CUSTOMERS' QUESTIONS!

Retailers who have used this framed Lumite model are enthusiastic—say it's a time saver! It means more sales with less effort. Keep your framed Lumite model up front during the screen season—and cash in!

Lumite is made from Dow's Saran

LUMITE

THE *QUALITY* INSECT SCREEN CLOTH

DISTRIBUTED THROUGH HARDWARE AND WOODWORK WHOLESALERS

5 MORE FREE SALES AIDS!

1. SAMPLES! Tagged 3" x 7" swatches of Lumite cloth. Give them to your customers as reminders!
2. STREAMERS! Bold window streamers come in each 30" roll. Gummed for easy sticking. Use them in your window for extra sales!
3. FOLDERS! Attractive color pamphlets (four-page, 3" x 6", with space for your name). Proved sales-pullers as handouts or mailing pieces!
4. NEWSPAPER MATS! Free mats of hard-selling ads! Give you local tie-in with Lumite's heavy national advertising!
5. NATIONAL ADVERTISING! More than 5½ million home owners see eye-catching Lumite advertisements in American Home, Better Homes & Gardens, House Beautiful, House & Garden, Small Homes Guide!

Write us direct or contact your wholesaler for the above sales aids and reprints of the national advertising.

LUMITE DIVISION
Chicopee Manufacturing Corp.
47 Worth St., New York 13, N. Y.

DURABILITY

Brass hardware can be depended upon under almost any circumstances to last as long as the house. It is most important to have brass knobs and handles and brass lock bolts. Cast brass hardware is best although slightly more costly. Wrought brass, lighter in weight — is honest metal and will last a long, long time at a moderate cost.

FINISHES ON SOLID BRASS

Of the finishes suitable for the home, the most durable are those produced on solid brass in the natural color of the metal. These include satin, polished and aged finishes, the last obtained by use of oil or wax.

Moist air, smoke, acid exuded from the hands, etc., cause metal to tarnish; therefore, satin and polished finishes are generally lacquered to delay corrosion.

On unlacquered brass, the original luster may be restored by an occasional polishing or the tarnish may be allowed to form a natural patina of unsurpassed beauty.

The artificially aged finishes are supplanted by natural aging as the oil and wax rubs off. While any surface coating will wear off in time, exposing the base metal, chromium — either satin or bright — is the most durable of the plated finishes.

FINISHES ON IRON AND STEEL

Finishes on iron or steel cannot be compared with those on non-ferrous metal. Cast iron resists corrosion better than steel but rust destroys both metals. The primary purpose of finishes on them is not to decorate but to cover them with a moisture proof substance. The rust resistant finishes are hot dipped galvanized, cadmium plated and painted finishes. The decorative platings on iron and steel are the least durable.

DECORATION

Finish is also important for its decorative value. Brass is the most acceptable residential color. It is warm and comfortable and fits in with traditional architecture and decoration.

A white finish, best achieved with dull chromium, is often used with modern design. In bathroom and kitchen, however, the finish should always be chromium . . . dull or polished depending upon the finish of the plumbing fixtures.

TRANSOM HARDWARE

Transom Catch

....Doz.	.....Fin.....
1 Iron, Plated	Dull Brass

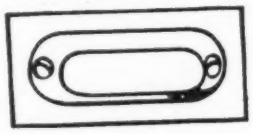
Transom Chain

....Doz.	.....Fin.....
1 Steel, Plated	Dull Brass

WINDOW HARDWARE

Sash Fast

....Doz.	.....Fin.....
2 Iron, Plated	Dull Brass
....Doz.	.....Fin.....
1 Iron, Plated	Nickel



Flush Sash Lift

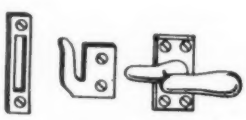
....Doz.	.....Fin.....
3 Steel, Plated	Dull Brass
....Doz.	.....Fin.....
3 Steel, Plated	Nickel

Hook Sash Lift

....Doz.	.....Fin.....
2 Steel Plated	Dull Brass
....Doz.	.....Fin.....
2 Steel, Plated	Nickel

Bar Sash Lift

....Doz.	.....Fin.....
2 Iron, Plated	Dull Brass
....Doz.	.....Fin.....
1 Iron, Plated	Nickel

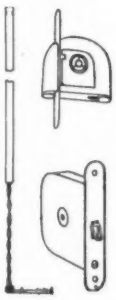


Casement Fast

....Doz.	.....Fin.....
2 Iron, Plated	
....Doz.	.....Fin.....
1 Iron, Plated	

Casement Operator

....Only	.....Fin.....
6	Dull Brass



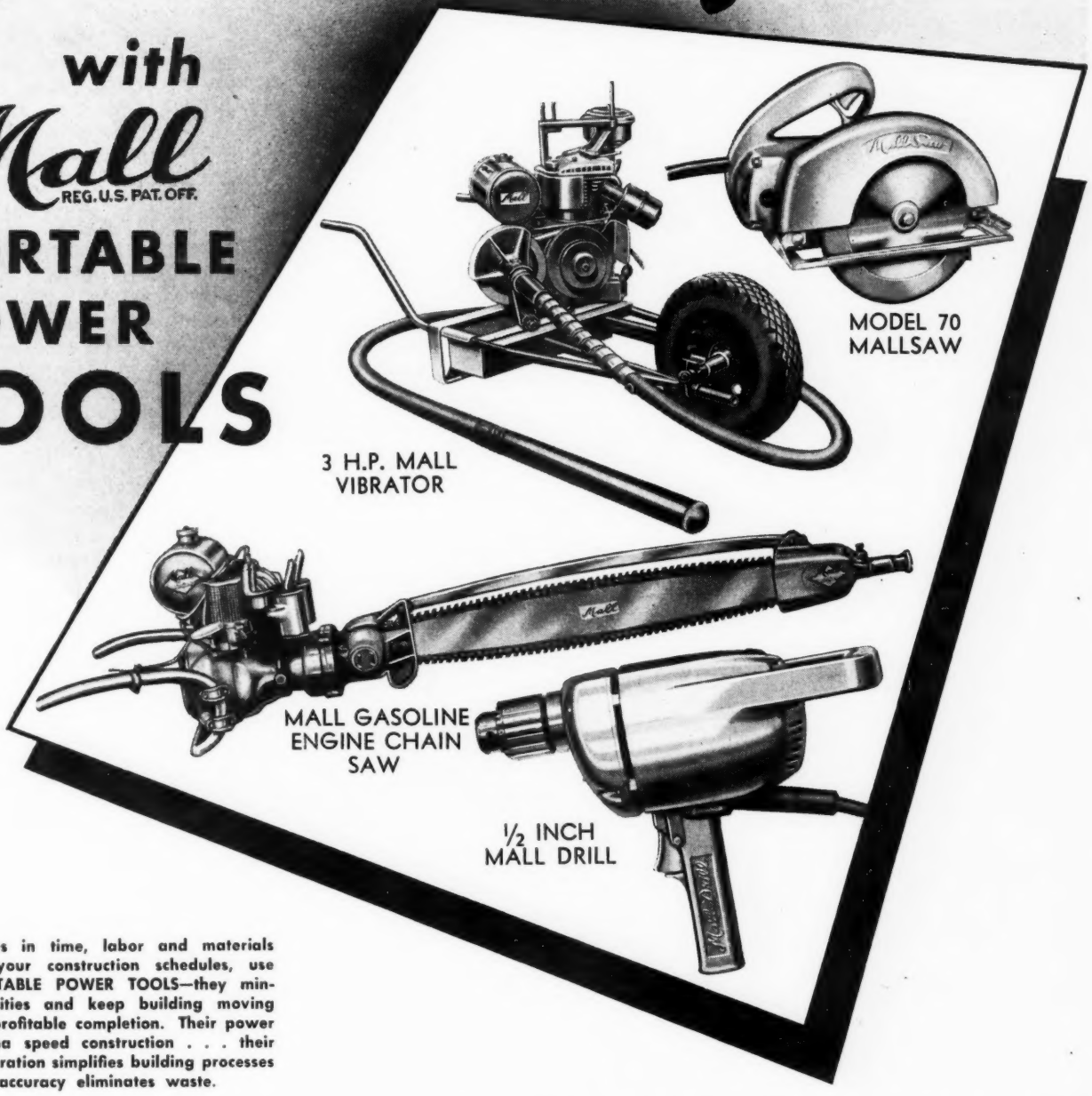
Pulley & Balance

....Doz.	.....
	Sash Pulley
....Doz.	.....
	Sash Pulley
....Sets	.....
	Balances
....Sets	.....
	Balances
....Sets	.....
	Balances
....Sets	.....
	Balances

KEEP Construction Moving...

with Mall REG. U.S. PAT. OFF.

PORTABLE POWER TOOLS



If shortages in time, labor and materials stalemate your construction schedules, use MALL PORTABLE POWER TOOLS—they minimize scarcities and keep building moving toward a profitable completion. Their power and stamina speed construction . . . their ease of operation simplifies building processes . . . their accuracy eliminates waste.

MALLSAWS—facilitate multiple cutting of like members—notch rafters—trim floor and roof decking—put construction on a production basis. 2", 2¼", 2⅞" and 4½" capacities available for 110-volt AC-DC or 220-volt AC-DC.

MALL CONCRETE VIBRATORS—place a stiffer mix concrete five times faster than hand puddling. A size and type is available for every job—powered by 1½ or 3 H.P. Gasoline Engine, 7500 r.p.m. Pneumatic and 1½ H.P. Electric units. Gasoline Engine Power Unit operates 8 other tools.

MALL CHAIN SAWS—can be used for clearing timber lands—or for cutting rough timbers and heavy pilings. Pneumatic model can be used to cut piling under water. Gasoline Engine, Electric and Pneumatic models available in 18-inch to 10-foot capacities.

MALLDRILLS—power-packed for drilling wood and metal. ½" model cuts 1" holes in concrete form boards for ties and clamps—cuts ½" holes in steel. Other models with ¼" (in two speeds), 5/16" and ⅜" capacities available. All have universal motors.

MALL TOOL COMPANY

7733 SOUTH CHICAGO AVENUE, CHICAGO 19, ILL.

See Our Advertisement in THE SATURDAY EVENING POST — May 10 issue.

BOLTS

Flush Extension Bolt

....Only Extension Bolts 9″
2 Fin.....
Dull Brass

....Doz. Surface Bolts 4″
1 ⅜ Brass Fin.....
Dull Brass

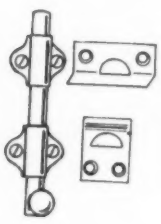
....Doz. Surface Bolts 4″
1 ⅜ Brass Fin.....
Pol. Chrome

....Doz. Surface Bolts 4″
1 ⅜ Iron, Plated Fin.....
Dull Brass

....Doz. Surface Bolts 4″
1 ⅜ Iron, Plated Fin.....
Nickel

....Doz. Surface Bolts 6″
1 ½ Brass Fin.....
Dull Brass

....Doz. Surface Bolts 6″
1 ½ Iron, Plated Fin.....

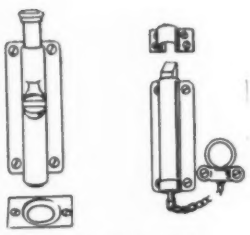


Surface Bolt

Dull Brass

....Doz.....Chain Bolts 6″ Japanned
1

....Doz.....Foot Bolts 6″ Japanned
1

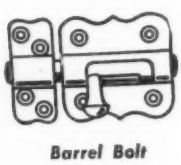


Foot & Chain Bolts

....Doz.....Barrel Bolts 2″
1

....Doz.....Barrel Bolts 3½″
1

....Doz.....Barrel Bolts 4″
1



Barrel Bolt

Chair Door Fast

....Doz. Chain Door Fasts
1 Steel, Plated Fin.....
Dull Brass

DOOR STOPS & HOLDERS

....Doz. Base Stops Fin.....
1 Iron, Plated Dull Brass

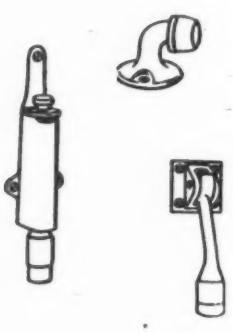
....Doz. Base Stops Fin.....
1 Iron, Plated Nickel

....Doz. Floor Stops Fin.....
1 Dull Brass

....Doz. Floor Stops Fin.....
1 Nickel

....Doz. Lever Type Holder
½ Iron, Plated Fin.....
Dull Brass

....Doz. Plunger Type Holders
¼ Iron, Plated Fin.....



Door Stops

SUGGESTIONS

The wise merchant sells, not hardware, but security, convenience, comfort, beauty and durability.

Cylinder locks with deadbolts on all outside doors for security; keyed alike or master-keyed for convenience.

Screen door closers for quiet, more comfortable living.

A knocker, house numbers and a letter box are conveniences; they also add to the beauty of the entrance.

The hardware should last as long as the house; solid brass will.

Tight fitting doors and windows make for economy as well as comfort. Storm sash keep out drafts. An extra catch on casement windows makes them tight fitting. Weather stripping the doors and windows keeps out the cold.

Storm sash should have ventilating holders.

A knob inside the door is insurance against getting trapped in the closet.

NOTES

It builds good will to upgrade your customers' hardware specifications when possible.

Two percent of the contract price is not too much to spend for hardware.

Build sales higher, wider and thicker by pointing out the small extra monthly payment required.

Many hardware sales lend themselves to installment payment suggestions.

It is important that all displays be kept spotlessly clean, polished and bright.

The dealer should write his manufacturing and wholesale suppliers for informative and educational material.

SELECTION

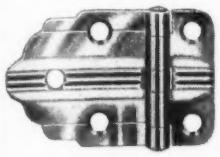
To assist customers in selecting styles, colors, sizes, shapes, etc., the store should have ample boards and panels showing the items customarily carried in stock, displayed as used when possible. A favorite method of selection display is to have shelf cabinets with hinged doors — the shelves to contain the inventory of materials displayed on the exterior of the adjacent door.

Another is to have wall display panels open or concealed with drawers below filled with the displayed merchandise.

Amerock CABINET HARDWARE

Streamlux

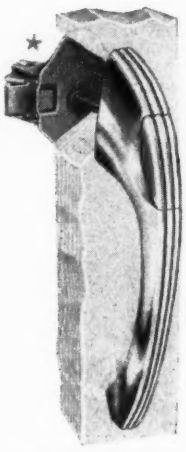
Streamlined beauty at moderate prices. Neo Die Cast, Polished Chromium finish, black embossed lines.



No. E3050—Flush Doors
No. E3052—⅜" Offset
(Patent No. D126,556)

No. ED531 Knob

No. ED405 Door Pull
(Patent No. D126,551)



No. ED9400 Catch
(Patent No. D126,551)

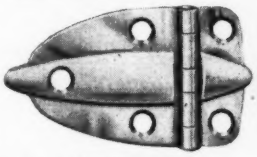
No. ED400 Drawer Pull

★ Precision winged latch bolt mechanism (Pat.Nos. 2,233,278; 2,304,145)

Stratoline

The very finest in styling and quality. Neo Die Cast with beautiful Polished Chromium finish.

ACTUAL SIZE



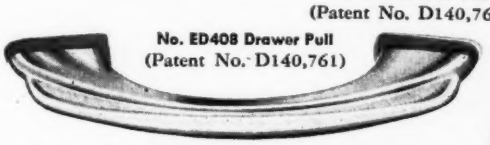
No. E3080—Flush Doors
No. E3082—⅜" Offset
(Patent No D140,763)

No. ED530 Knob

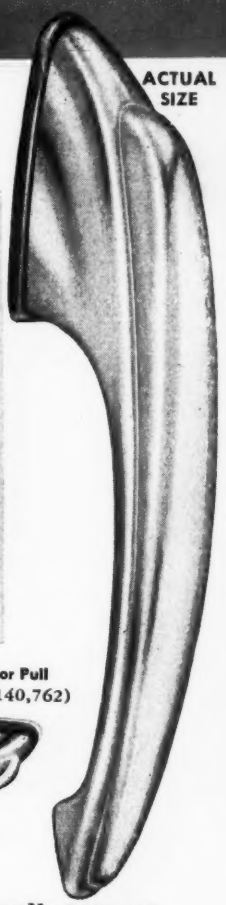
No. ED9408 Catch
(Patent No. D140,765)

No. ED418 Door Pull
(Patent No. D140,762)

No. ED408 Drawer Pull
(Patent No. D140,761)



Both red and black plastic bases packed with Pulls and Catches.

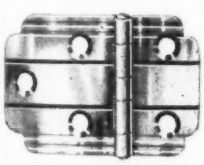


★ Precision winged latch bolt mechanism (Patent No. 2,233,278)

BEAUTIFUL MATCHED DESIGNS IN EVERY PRICE RANGE

De Luxe

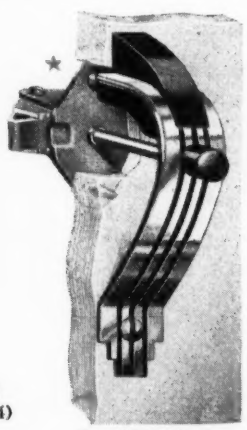
For colorful kitchens. Polished Chromium over Brass, with plastic bases and color-embossed lines regularly supplied in ebony black or red. Other colors to order.



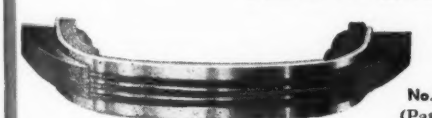
No. E3067—Flush Doors
No. E3069—⅜" Offset

No. E547 Knob

No. E08215 Door Pull
(Patent No. D109,464)



No. E08760 Catch
(Patent No. D109,464)

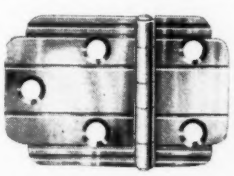


No. E08260 Drawer Pull
(Patent No. D109,464)

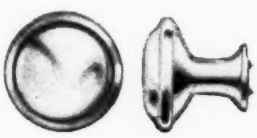
★ Precision winged latch bolt mechanism (Patent No. 2,233,278)

Standard

Quality Cabinet Hardware at low cost. Beautiful new designs in Genuine Chromium Plated finish.



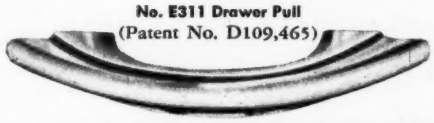
No. E3066—Flush Doors
No. E3068—⅜" Offset

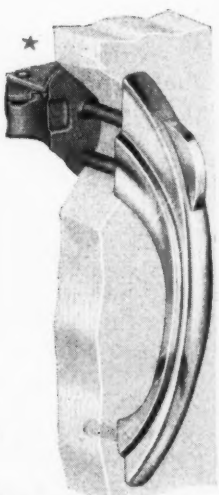


No. E545 Knob

No. E314 Door Pull
(Patent No. D140,759)

No. E311 Drawer Pull
(Patent No. D109,465)





No. E9414 Catch
(Patent No. D140,766)

★ Precision winged latch bolt mechanism (Patent No. 2,233,278)

SEND FOR COMPLETE CATALOG
or ask your Jobber for full details
AMERICAN CABINET HARDWARE
CORPORATION

GENUINE Amerock PRODUCTS

AMERICAN CABINET HARDWARE CORP., ROCKFORD, ILL., DEPT. 1-AP
Please send latest catalog on "Amerock" Cabinet Hardware to:

Name_____

Address_____

City_____ State_____

My favorite Jobber is_____

A third is to use pictures, drawings and catalogues supplied by manufacturers and wholesalers.

IMPULSE BUYING

Scores of items of hardware lend themselves to impulse buying as the customer notes the item in passing through the store — such items should be displayed conveniently on counters, islands and floor space where the customer will encounter it in his normal line of vision.

GIFT ITEMS

Door knockers, chimes, fireplace fixtures and many other items make appropriate gifts for weddings and anniversaries. Try a window of gift items sometime and include a card suggesting tools for the son or dad who has a shop in the cellar.

RELATED ITEMS

The wide-awake merchant is alive to the possibilities of related selling. Suggest a screen door closer to the customer who buys a screen door catch; a door closer to go with a store door lock. The buyer of material for a gate or doghouse may need a padlock and a hasp. A lock should be sold with a garage set.

TIPS FOR THE SALESMAN

Flush hardware on all sliding doors.

Hardware finish should be uniform in each room fitted.

Weight of hardware should be in proportion to the weight of the items to which it is fitted.

Check special door and window installations to determine if hardware is provided by the manufacturer.

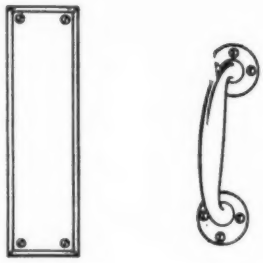
Tarnishing factors to be guarded against include salt air, perspiration from hands, and fumes from fuels and acids. Where these conditions exist solid brass is indicated.

Always see that necessary screws and bolts are supplied with the items you sell.

Watch out for stock and display hazards that could cut, fall upon or otherwise injure customers.

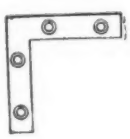
Special types, sets and units of hardware are made for: awnings, barns, bathrooms, cabinets, casements, closets, cupboards, drawers, fireplaces, gates, kitchens, shelving and the many varieties of doors and windows.

MISCELLANEOUS



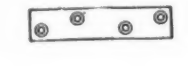
Dull Brass
....Doz. Door Pulls Fin.....
1/6 Brass Dull Brass
....Doz. Push Plates 12 x 3
1 Glass
....Doz. Push Plates 15 x 3½
1/6 Brass Fin.....
Dull Brass

....Doz.....Corner Braces.....2
2
....Doz.....Corner Braces.....3
2
....Doz.....Corner Braces.....4
2

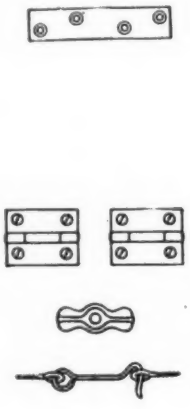


....Doz. Flat Corner Irons ⅜ x 2
2
....Doz. Flat Corner Irons ⅝ x 3
2
....Doz. Flat Corner Irons ¾ x 3
2

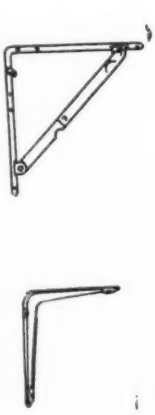
....Doz. Mending Plates 2½
2
....Doz. Mending Plates 3
2
....Doz. Mending Plates 5
2



....Gro. Cellar Window Sets
½



....Pr. Folding Shelf Brackets 12 x 12
3
....Only Shelf Brackets 4 x 5
12
....Only Shelf Brackets 6 x 8
12
....Only Shelf Brackets 8 x 10
12
....Only Shelf Brackets 10 x 12
6



SLIDING DOOR HARDWARE

Sliding Doors are becoming increasingly popular. They require such hardware as tracks, carriers, rollers, door guides, supporting brackets, etc.

AW CUT NAILS READING BRAND

Fewer Nails–Added Safety

The extra holding power of "A.W." (Reading Brand) Cut Nails means that fewer nails can be used . . . that the same number of nails will provide a larger margin of additional safety. When a job is done with "A.W." Cut Nails, it never has to be done again.

There's an "A.W." Cut Nail for every nailing job—flooring, finishing, roofing, etc. . . . Recommended by Maple Flooring Mfrs. Assn. and National Oak Flooring Mfrs. Assn. for laying fine hardwood floors . . . Approved by National Safety Council for all principal nailing points on wood scaffolds . . . Excellent for green lumber and heavy planking.

"A.W." Cut Nails are furnished Black, Galvanized or Quenched and Tempered. "A.W." Quenched and Tempered Cut Nails are the strongest nails it is possible to produce.

Made in all standard lengths from 2d to 100d (1 in. to 8 in.). Packed in 100 lb. steel-hooped kegs. Also 50 lb. kegs and 25 lb. packing on special order. Write for literature and price list.

ALAN WOOD STEEL COMPANY

MAIN OFFICE AND MILLS, CONSHOHOCKEN, PENNA. : : SINCE 1826

Illustrations show nails actual size

SOME OTHER TYPES OF "A.W." CUT NAILS

Letters identify illustrations.

(a) 1" Fine. Made in 1" to 1⅜".
(b) 4d Slating. Made in 3d to 6d.
(c) 2½" Clinch. Made in 1¼" to 4".
(d) 4" Boat. Made in 1" to 6".
(e) 4" Edge Gripe Spike. Made in 4" to 8".
(f) 4" Flat Spike. Made in 4" to 8"
(g) 12d Special Tobacco Warehouse. Made in 6d to 12d.
(h) 2¼" Hinge. Made in 2" to 4".
(i) 4d Shingle. Made in 2d to 6d.
(k) ⅞" Cottage. Made in ¾" to 1½".
(l) 8d Regular Finishing. Made in 2d to 40d.
(m) 8d Headless. Made in 2d to 100d.
(n) 8d Hook Head. Made in 2d to 100d.
(o) 8d Casing. Made in 3d to 40d.
(p) 2½" Fire Door and Light Clinch. Made in 2" to 3".
(q) 2½" Form. Made in 1¼" to 4".
(r) 8d Sheathing. Made in 5d to 60d.
(s) 8d Foundry. Made in 6d to 60d.
(t) 8d Fence. Made in 5d to 20d.
(u) 1¼" Clout. Made in ¾" to 2".

Red Devil LEADS THE WAY

Illustrated below are but a few of the top-selling leaders in the world famous line of Red Devil Tools and Machines. Catalog describing many hundreds of items available upon request.

RED DEVIL GLASS CUTTERS

The new light and easy G1 all aluminum Glass Cutter and the standard line of Red Devil Glass Cutters for every type of glass—also circle cutters. All, the world's most popular.

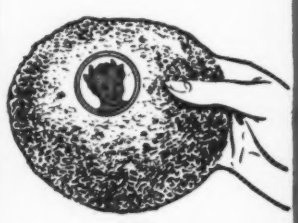
RED DEVIL POINT DRIVERS & GLAZIERS POINTS

—also tops in the world market. Other Red Devil Glaziers' Tools include glass pliers, vacuum cup glass holders, razor blade scrapers, etc.

RED DEVIL POT CLEANERS

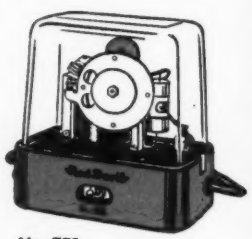
Ball Type — the world's standard.

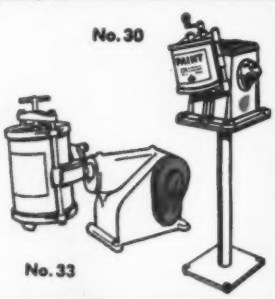
Big size — biggest value. Pure copper mesh — won't mat, splinter or shred. Packed 24 to display box.



RED DEVIL ELECTRIC FENCERS

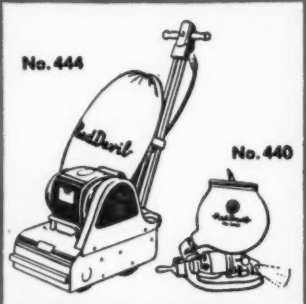
Battery operated for safety. Intermittent shock for perfect effectiveness, and greatly increased battery life. Helps sale of fencing and other equipment.





RED DEVIL PAINT CONDITIONERS

Put pep in paint sales—makes all paint fresher than fresh. No. 30 has counter high pedestal base, four can and square can adaptors. No. 33 best for 5-gallon pails.



RED DEVIL FLOOR SANDERS AND EDGERS

Big sales and rental items. Light, portable—the last word in efficiency. Dust proof, and fool proof. Very popular with master painters.

RED DEVIL WOODWORKING TOOLS

Complete line of wood scrapers, with replaceable, keen and serrated edges. Also sandpaper holders, steel wool holders, scrapers, handy pack sandpaper, etc., etc.

RED DEVIL PAINTERS' TOOLS

Complete line of putty knives, wall scrapers, burn-off knives, spreaders, chisels, paper hangers' knives, casing wheel knives, seam rollers, paint mixers, etc., etc.

RED DEVIL REDDY TEES

The best known, most desired golf tee in the world—now back in production. Sell themselves whenever displayed. Reddy Tees also make fine prize and premium items.

RED DEVIL ROLLER STIPPLERS & ROLLER PAINTERS

For oil, plastic or cold water paint. Rollers are rapidly replacing brushes for many uses. New aluminum Roller Stipplers have replaceable covers.

SINCE 1872 **Red Devil Tools.** IRVINGTON N. J., U. S. A.

Hardware and Related Items

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

Tools, Carpenters, Masons, Glaziers, Bricklayers, Plasterers Nails, Spikes, Screws, Tacks, Brads, Staples, Bolts

( ) Abrasive Papers
( ) Adhesives
( ) Adzes
( ) Automatic Tackers
( ) Axes
( ) Bobbitt Metal
( ) Block, Chain & Tackle
( ) Blow Torches
( ) Bricklayers Chisel
( ) Bricklayers Hammer
( ) **Builders Hardware**
  ( ) Cabinet Makers Glue
  ( ) Calipers
  ( ) Carpenters Chalk
  ( ) Carpenters Pencils
( ) **Chains**
  ( ) Dog Kennel
  ( ) Halter
  ( ) Heavy Duty
  ( ) Loading
  ( ) Safety
  ( ) Sash
  ( ) Tow
( ) **Chisels**
  ( ) Brick layers
  ( ) Butt
  ( ) Pocket
  ( ) Ripping
( ) Crayons
( ) Crowbars
( ) Emery cloth
( ) Door Bells
( ) Door Bell Batteries
( ) Door Bell Wire
( ) Door Mats
( ) Drawer Hardware—Knobs and Pulls
( ) Electric Clocks—(See Electrical Equipment and supplies.)
( ) **Files**
  ( ) Bastard
  ( ) Knife Blade
  ( ) Knife Sharpening
  ( ) Mill
  ( ) Taper
  ( ) Utility
( ) Folding Rules
( ) Floor Sanders—(See Flooring Section.)
( ) Gasoline Camp stores
( ) Glaziers Tools—(See Glass Section.)
  ( ) Cutters
  ( ) Putty Knives
( ) Glues
  ( ) Furniture
  ( ) Mending
  ( ) Painters
  ( ) Waterproofing
( ) Hammers
  ( ) Bricklayers
  ( ) Claw
  ( ) Heavy service
  ( ) Leather Handled
  ( ) Tack
( ) Handles
  ( ) Axle
  ( ) Hammer
  ( ) Hatchet
  ( ) Pick
( ) Hand Drills
  ( ) Drills Sets
( ) Hatchets
( ) Insulation Board Cutters
( ) Insulation Board Bevelers
( ) Jacks

. . . . . .
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( ) Kerosene
  ( ) Heaters
  ( ) Lamps
  ( ) Lanterns
  ( ) Stoves
( ) **Extension Ladders**
  ( ) General Purpose Extension
  ( ) Eastern Extension
  ( ) Western Extension
  ( ) Mechanics' Extension
  ( ) Awning Extension
  ( ) Closed Top Fruit Extension
( ) **Single Ladders**
  ( ) Taper Single
  ( ) Masons' Single
  ( ) Spread Bottom Fruit Single
  ( ) Closed Top Fruit Single
  ( ) Mechanics' Single
( ) **Step Ladders**
  ( ) Safety Step
  ( ) Electric Step
  ( ) Mechanics' Step
  ( ) Truss Step
  ( ) Paperhanger Step
  ( ) Fruit Step
( ) **Trestles**
  ( ) Extension Trestle
  ( ) Combination Trestle & Extension
  ( ) Painters' Trestle
( ) **Platform Step Ladders**
  ( ) Heavy Platform
  ( ) Standard Platform Step
( ) **Sectional Ladders**
( ) **Stages**
  ( ) Masons' Staging
  ( ) Painters' Staging
  ( ) Toothpick Staging
( ) **Extension Planks**
( ) **Window Cleaners' Ladders**
( ) **Stockroom Ladder**
( ) **Shelf Ladder**
( ) **Ladder Locks, Hooks, Spurs and Shoes**
( ) Levels
  ( ) Aluminum
  ( ) Masons
  ( ) Pocket
  ( ) Steel
  ( ) Torpedo
  ( ) Wood
( ) Melting Pots
( ) Metal Shears
( ) Micrometers
( ) Miter Boxes
  ( ) with saws
( ) Monkey Wrenches
( ) Nail Pullers
( ) Nail Sets
( ) Oxide Cloth
( ) Planes
  ( ) Block
  ( ) Rabbet
  ( ) Jack

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( ) Pliers
  ( ) Combination
  ( ) Cutting
  ( ) Flat Nose
  ( ) Linemans
  ( ) Needle Point
  ( ) Slip Nose
  ( ) Wire Cutting
( ) Plasters Tools—(See Plastering Section.)
  ( ) Aluminum Floats
  ( ) Eagle Floats
  ( ) Darbie
  ( ) Hawks
  ( ) Hods
  ( ) Inside Corner Tools
  ( ) Jointers
  ( ) Outside Corner Tools
  ( ) Walking Trowels
  ( ) Wide-face Edgers

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( ) Rubber Stair Treads
( ) Rust Preventatives
( ) Sanding Blocks
( ) Sand Paper
( ) Saws
  ( ) Band
  ( ) Buck
  ( ) Buzz
  ( ) Compass
  ( ) Coping

Hardware and Related Items

( ) Cordwood
( ) Cross—cut
( ) Cut—off
( ) Dado
( ) Hack
( ) Hand
( ) Hollow-ground
( ) Jig
( ) Keyhole
( ) Rip
( ) Two-Man
( ) Woodsmans

( ) Saw Horses
( ) Saw Tools
  ( ) Guage
  ( ) Jointer
  ( ) Vise
( ) Scoops
( ) Scrapers
( ) Screw Drivers
  ( ) Automatic
  ( ) Cabinet
  ( ) Heavy Duty
  ( ) Pistol Grip
  ( ) Screen Holding
  ( ) Spiral Ratchet
  ( ) Stub

( ) Sharpeners and Sharpening Tools
( ) Shovels
( ) Solder
( ) Squares
  ( ) Calipers
  ( ) Combination
  ( ) Micrometers
  ( ) Steel
  ( ) Try

( ) Spades
( ) Steel Tape
( ) Steel Wool
( ) Stones
  ( ) Axe
  ( ) Grind
  ( ) Oil
  ( ) Pocket
  ( ) Scythe

( ) Timber Connectors
( ) Tool Boxes
( ) Trowels
( ) Turnbuckle
( ) Unpainted Furniture

( ) Vises
  ( ) Bench
  ( ) Hand
  ( ) Woodworkers
( ) Wheelbarrows
( ) Wire Ropes
( ) Wrenches
  ( ) Bull Dog
  ( ) Cutting
  ( ) Grip
  ( ) Midget
  ( ) Rachet
  ( ) Pipe
  ( ) Stillson

TOOLS: DESCRIPTION

I. CLASSIFICATION OF TOOLS

A. Hand tools
  1. Lay-out tools—rule, square, dividers
  2. Boring tools—hand drills, brace and bit
  3. Driving tools—hammer, mallet
  4. Cutting tools—handsaw, chisel, knife
  5. Holding tools—vise, clamp, pliers
  6. Sharpening tools—oilstone, slipstone

II. COMMON ESSENTIAL TOOLS

A. Knife
  1. Parts of electrician's knife
    a. Handle
    b. Blade
    c. Screw driver and screw driver lock
  2. Care of knife
    a. Removing small knicks
      (1) Stroke first on one side, then on the other. Move the tool so that the cutting edge meets the stone first
      (2) Keep the blade at an angle of 20 degrees to the stone
      (3) Hone (whet) on oilstone, repeating (1) and (2) to correct cutting edge
    b. Conditioning knife
      (1) Cleaning
      (2) Reshaping broken knife points
    c. Inspection for rust
      (1) Removing rust
      (2) Rust prevention (oil coating)
  3. Use of knife
    a. Whittling soft materials
    b. Cutting rope, twine, etc.
    c. Removing insulation from wires
    d. Scraping wires clean with screw driver blade
  4. Safety
    a. When using cutting blade, do not cut toward body
    b. Pressure should be so directed that the knife cannot fold while it is being used

B. Screw Driver
  1. Parts
    a. Handle
    b. Blade
  2. Care of screw driver—conditioning
    a. Grind the broad flat surfaces so that they are slightly concave (or shape with file)
    b. Keep even taper so that the tip will be on the center line of the shank
    c. Shape the sides of the blade parallel for the depth of the screw slot
    d. Shape the tip square and uniform in thickness
  3. Use of screw driver
    a. Driving or removing slotted screws
    b. Holding slotted machine screws for tightening small nuts with wrenches
    c. Use of set of screw drivers
  4. Safety
    a. Always carry a screw with the center of the screw and screw driver in line
    b. Avoid carrying a screw driver in a pocket: the point of the blade may cause injury
    c. Do not use a screw driver with a bent blade
    d. Work in such a manner that if a screw driver slips it will not cause injury to the hands or face

C. Pliers
  1. Types of pliers commonly used
    a. (Blunt-nosed) side-cutting pliers
    b. Long-nose pliers
    c. Diagonal pliers
  2. Use of side-cutting pliers
    a. Cutting wire with side cutters
    b. Insulation crushing (using heel)
    c. Gripping
    d. Wire cutting. (Never cut solid wires completely apart. Nick wire with pliers and use jaws of pliers to bend wire back and forth until it breaks.)
    e. Insulation stripping. (When removing insulation, do not permit the jaws to touch the bare wire.)
  3. Use of long-nose pliers
    a. Gripping. (Do not use this type of pliers to hold large objects, to tighten nuts or to bend large gage wire or sheet metal. Such practices spring the jaws and render the pliers unserviceable.
    b. Reaching places not readily accessible to the hand
    c. Holding wires
    d. Bending loops
    e. Attaching wires to terminals and punchings
    f. Skinning and splicing small wires
  4. Use of diagonal pliers
    a. Cutting small gage wires
    b. Cutting wires in close places

III. MEASURING AND GAGING

A. Steel scale
  1. Graduations
    a. First edge in eighths of an inch
    b. Second edge in sixteenths of an inch
    c. Fourth edge in sixty-fourths of an inch
  2. Use of steel scale
    a. Linear measurements requiring a higher order of accuracy
    b. Surface testing (straight edge)
  3. Use of rules for linear measure

B. Wire gage (circular)
  1. American standard gage and Brown & Sharpe gage for copper wire
  2. Birmingham or stubbs gage for iron wire
  3. Use of wire gage

C. Micrometer calipers
  1. Decimal system
  2. Principles of micrometer
    a. Revolution line graduations
      (1) Single graduations—0.025 inch apart
      (2) Every fourth graduation—0.100 inch apart

Things the building products salesman should know about tools and their use.

    b. Thimble graduation — single graduations — 0.001 inch apart
  3. Vernier scale
    a. Principle
    b. Use
  4. Use of micrometer calipers

IV. WOODWORKING

A. Lay-out and testing
  1. Measure with rule
  2. Lay out and test with try-square
  3. Lay out, using patterns

B. Cutting
  1. Crosscut to a line
  2. Rip to a line
  3. Cut curves

C. Shaping
  1. Surface planing
  2. Edge planing
  3. End-grain planing
  4. Auger-bit "through" boring
  5. Twist bit and twist drill
  6. Countersinking
  7. Curves
  8. Chamfer

D. Jointing
  1. Butt joint
  2. Half-lap joint
  3. Rabbet joint
  4. Dado joint
  5. Mitre joint
  6. Mortise-and-tenon joint

E. Assembling
  1. Nails
  2. Screws
  3. Bolts
  4. Glue
  5. Dowels

F. Finishing—preparation of surfaces
  1. Scraping
  2. Sanding

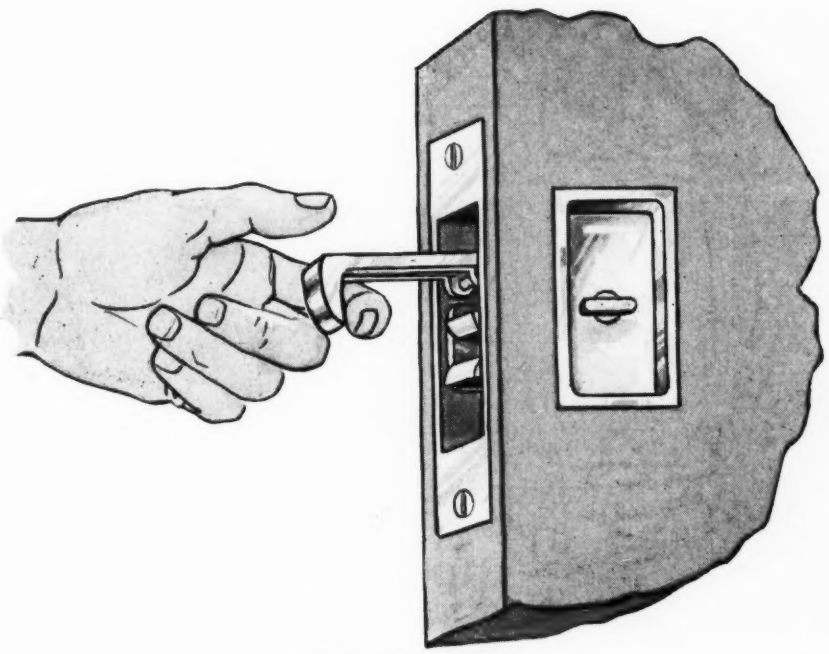
G. Wood preservation (painting)
  1. Purpose of paints
    a. Prolonging serviceable life of materials
    b. Sealing agent
    c. Improving appearance
    d. Camouflage—minimize reflection by use of olive drab and blue drab paints
  2. Care of brushes
    a. Types, shapes and purpose of brushes
    b. Cleaning brushes
    c. Care of bristles
    d. Storing brushes
  3. Composition of paints
    a. Base
    b. Pigment
    c. Vehicles—solvents, oils, driers, etc.
  4. Applying paint
    a. Color-matching technique
    b. Brushing technique
  5. Safety
    a. Dangers of fire from rags, open paint cans, etc.
    b. Storage of combustibles

II. Analysis of woodworking in terms of skills and understanding to be developed

Peabody-Acker, Inc.

5816 HOOPER AVE.
LOS ANGELES, CALIFORNIA U.S.A.

NUMBER 58 MORTISE SLIDING DOOR LOCK



Patent No. 2,253,495

A modern, compact, sliding door lock that can be used on any sliding door that is 1 3/8 or more inches in thickness, up to and including 1 3/4 inches.

One of the unusual features of No. 58 MORTISE SLIDING DOOR LOCK is the edge pull which is incorporated in the face of the lock itself, eliminating the cost and installation of a separate edge pull.

The escutcheons are wrought brass or bronze, 2" x 3 3/8" overall and are interchangeable.

Furnished in all standard hardware finishes and split finishes.

Face of lock, 7/8" x 4 1/4"
Backset, 2 1/4"
Packed, one in a box, complete with escutcheons
Weight, packed, 7/8 lb.

The No. 58 lock is available in three combinations.
No. 58-B, one blank escutcheon, & one with t. turn.
No. 58-E, with emergency turn, & one with t. turn.
No. 58-T, with t. turn both sides.

A template is packed with each lock to simplify installation.

Separate Edge Pulls, Flush Pulls and Jamb Bolts can be furnished for Sliding Doors.

Hardware and Related Items

NAILS, SPIKES, SCREWS, TACKS, BRADS, STAPLES, BOLTS

( ) **Carpenters Nails** — Size — Length — No. Per Pound
- ( ) Common Nails
- ( ) Lathing Nails
- ( ) Galvanized Shingle Nails
- ( ) Plaster Board Nails
- ( ) Box Nails
- ( ) Finishing Nails
- ( ) Casing Nails
- ( ) Brads
- ( ) Carpet Tacks

( ) **Bright Finish Wood Screws** — Size — Length — No. Per Pound
- ( ) Blued Wood Screws
- ( ) Solid Brass Screws
- ( ) Lag Screws
- ( ) Wood Screw Anchors
- ( ) Machine Screw Anchors
- ( ) Lag Screw Anchors
- ( ) Universal Screw Anchors

( ) **Bolts** — Size — Length — No. Per Pound
- ( ) Toggle Bolts
- ( ) Eye
- ( ) Door
- ( ) Machine
- ( ) Stove
- ( ) Cotter Pins
- ( ) Steel Picture Hangers
- ( ) Stove Bolts
- ( ) Carriage Bolts
- ( ) Machine Bolts

( ) **Nuts and Washers** — Size — Length — No. Per Pound
- ( ) One Piece Nuts
- ( ) Wrought Steel Washers
- ( ) Spring Lock Washers

( ) **Miscellaneous** — Size — Length — No. Per Pound
- ( ) Curtain Rod Hooks
- ( ) Cup Hooks

Things the Salesman Should Know About Tools and Their Use

How to make out a list of materials and stock sizes.
How to measure stock to lengths and widths.
How to crosscut and ripsaw to a line.
How to cut curves.
How to square stock to finished size.
How to use boring tools.
How to determine the type of wood joint best suited to a particular construction problem.
How to construct wood joints, butt, half-lap, rabbet, etc.
How to nail together wood assemblies.
How to fasten pieces of wood together with wood screws.
How to locate positions and insert dowel pins.
How to prepare wood for finishing.
How to read a drawing to determine exact sizes and numbers of pieces needed.
How to lay out work with least amount of waste with a rule, square marking gage, and/or pattern.
Condition of material (wet or dry), amount of saw set, shape and size of teeth.
How to file a saw.
The uses of coping saw, turning saw, compass saw, spokeshave, and rasp. How to smooth curves with sandpaper.
How to plane surfaces, end grain, and edge of lumber.
How to bore "through" holes with auger bits. How to counterbore. How to adjust and use expansive bits. How to use a twist bit, twist drill and countersink.
Types of wood joints. Strength of various joints. Methods of securing joints (with glue, dowels, nails, screws, etc.)
How to lay out joints with knife and try-square. How to use special tools in joinery (hacksaw, chisel-router plane, combinaton plane, etc.).
Kinds of nails and their special uses. Stagger-nail procedures. Toe nailing. Causes of injury—loose hanner head, nicked or wet bell face.
The sizes, types, and uses of screws. How to select drill sizes for pilot and clearance holes. How to determine depth of countersink for flathead and oval-head screws. How to use a ratchet brace and a screw driver bit.
How to aline and match centers for dowels.
How to determine the proper protective coating.

HARDWARE

Miscellaneous Items and Counter Merchandise

( ) Barometers
( ) Bell Traps
( ) Brooms—House and Push
( ) Calcium Chloride
( ) Chamois
( ) Clothes Line
- ( ) Fabric
- ( ) Wire
- ( ) Poles
- ( ) Props
- ( ) Pulleys

( ) Coal Chutes
( ) Culverts
( ) Domes of Silence
( ) Door Chimes
( ) Garment Hangers
( ) Garbage Receptacles
( ) Fireplace Fittings
( ) Insect Traps
( ) Nail Boxes
( ) Mops
( ) Mouse and Rat Traps
( ) Necktie Racks
( ) Rubbish Burners
( ) Rubber Mats
( ) Shoe Racks
( ) Water Filters

For the Farm

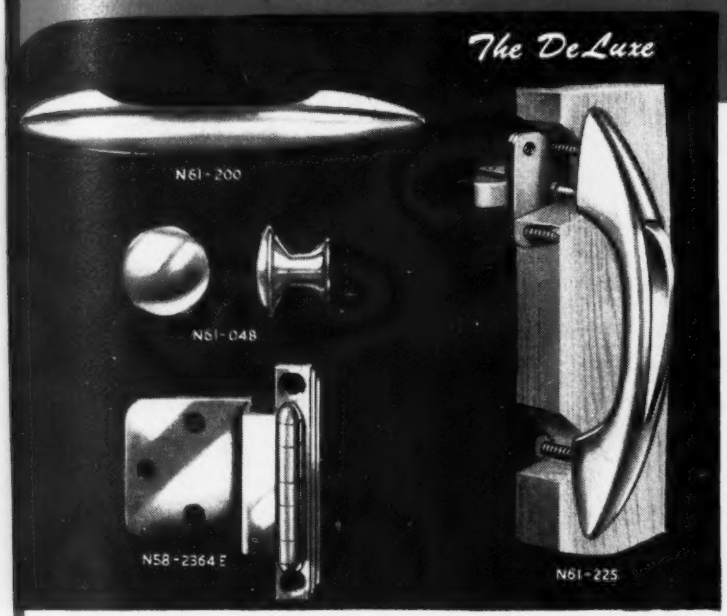
(See Farm Section)

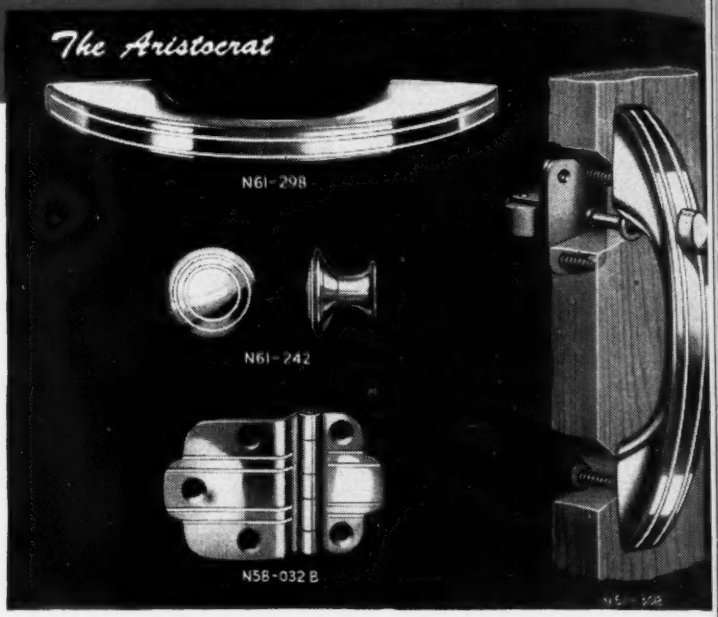
Wire and Fencing

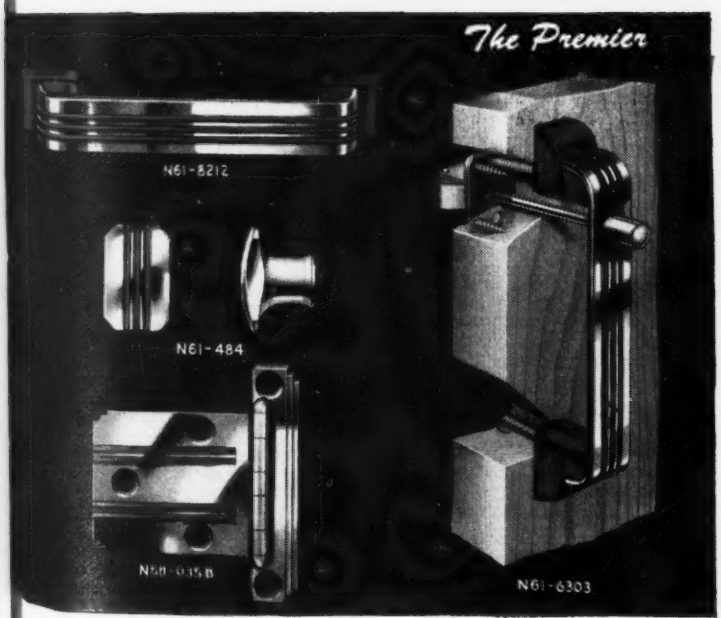
(See Lawn & Garden and Farm Sections)

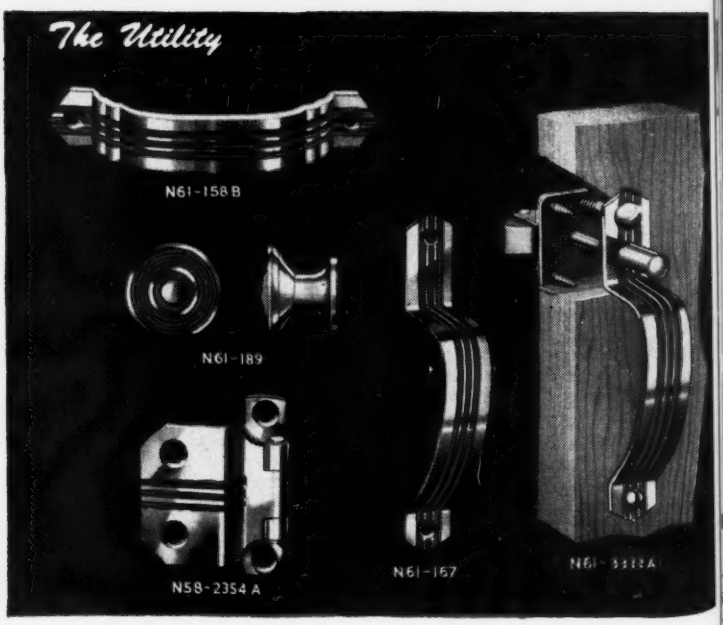
Items Asked For; Not Normally Stocked

Fast Selling, Profit Packed
CABINET HARDWARE









in matched sets in all price ranges

Today's most popular Cabinet Hardware creations. Each of the four eye-catching styles are masterfully designed and finished in sparkling chromium plate. Colorful descriptive circular and four beautiful display boards of your choice are available.

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★★★

NATIONAL LOCK COMPANY

Cabinet Hardware Division

ROCKFORD, ILLINOIS

Hardware and Related Items

( ) 28 gauge Blind steel oil coated for protection against rust. Self-locking seems—Five diameters 3, 4, 5, 6, 7". Two lengths, 12 and 24".
( ) Adjustable Stove Pipe Elbows—5 diameters, see above.
( ) Corrugated Elbows—Same sizes.
( ) Chimney Thimbles
( ) Flue Reducers
( ) Soot Destroyers—Spreads on hot coals.
( ) Coal Shovel
( ) Coal Scoop
( ) Coal Scuttles

Tool Rental Department

Investments in power tools to be rented to local warehouses have paid dealers as high as 10 percent per month (gross).

Items to be rented out include:

( ) Power saws
( ) Power drills
( ) Power Planes
( ) Sanders
( ) Floor cleaners
( ) Electric Hammers
( ) Blowing Machines
( ) Shingle Cutters
( ) Paint Sprayers
( ) Mortising Machines
( ) Vacuum Cleaners

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Merchandising Tip: No deliveries!—Always have the party renting a machine call for and return the machine to the store so that condition can be checked at the store and there will be no dispute as to responsibility for any damage.

INSECT WIRE SCREENING

Insect wire screening, formerly called screen cloth, but changed because that word "cloth" was confusing, if not an actual misnomer, needs no particular introduction to lumber and building products dealers. Flies are prevalent everywhere, from the first warm days of spring to late fall. And mosquitoes, too, are common to every section of the country. Surprisingly enough, competent authorities say that mosquitoes have been found in remote Arctic wastes where no vegetation and practically no form of animal or human life exists; what the mosquitoes live on in such rigorous surroundings is a complete mystery.

To say that every door and window in every dwelling should be screened, during warm weather, points to but part of the entire market for this indispensable product. Open porches should be screened if they are to be fully used and enjoyed. Restaurants, soda shops, food handling and processing plants, hotel dining and sleeping rooms and institutions, such as hospitals, boarding schools and college dormitories and dining halls, should all be screened. Public health regulations require the use of insect wire screening in all farm milk rooms, dairies and milk processing plants. Some states have laws on their books requiring its use in a wide variety of public places.

Wherever there is a fly, or a mosquito, and a human being, there lies a market for insect wire screening.

STANDARD STOCK ITEMS:

In January 1947, the U. S. Bureau of Standards, in collaboration with the insect wire screening manufacturing industry, promulgated a commercial standard for insect wire screening which carries the names of over five hundred direct acceptors. In the course of time, it is expected, this standard will be accepted and relied upon as a dependable guide to economical buying by the thousands upon thousands of wholesale and retail outlets for building products and hardware supplies. This document bears the title: Commercial Standard for Insect Wire Screening, CS 138-47. Printed copies may be obtained from any insect wire screening manufacturer and most of their jobbing outlets, or from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. If ordered direct from the government the cost is 5c per copy. Manufacturers and jobbers are supplying them free of charge.

The salient features of this new commercial standard embrace:

STANDARD TYPES AND SIZES

Metal	Meshes	Dia. of Wire	Finish
Steel	16x16, 18x14, 18x18	.011"	Galvanized
Com. Bronze	16x16, 18x14, 18x18	.011"	Brt. and Antique
Copper	16x16, 18x14, 18x18	.011"	Brt. and Antique

STANDARD WIDTHS AND LENGTHS

24" 26" 28" 30" 32" 36" 42" 48"
All in 100 linear foot rolls.

SPECIAL WIDTHS:

Most manufacturers, if quantities are sufficient to warrant special production, will supply practically any width up to a maximum of 48", but for prompt service and economy, it is recommended that standard widths be ordered wherever possible.

SPECIAL MESHES:

Mesh sizes other than standard can also be made to special order, but there is no apparent justification for ordering anything coarser than 16x16 or 18x14 mesh. A recent series of exhaustive tests conducted by two eminent university laboratories has conclusively demonstrated that the old-time 12x12 and 14x14 mesh sizes are wholly inadequate as a protection against mosquitoes. In southern sections of the country, these same tests showed nothing coarser than 18x18 mesh will bar out the small but extremely vicious yellow-fever mosquito, **Aedes aegypti.**

18x14 and 16x16 meshes are on a par so far as protective efficiencies are concerned. The laboratory tests with live mosquitoes above referred to demonstrated that one was just as effective as the other under like conditions. However, 18x14 mesh should never be regarded as the equal of 18x18 mesh. Every square inch of 18x14 mesh has 252 openings, while 18x18 mesh is so much finer that one square inch contains 324 openings. This should give a good demonstration of how much smaller are the openings in 18x18 mesh.

STEEL, BRONZE OR COPPER:

*Steel wire screening, when properly cared for, will give long and satisfactory service in areas removed from the sea-coast, and in localities where the atmosphere is usually dry and free from corrosive gases inimical to other ordinary steel building products such as galvanized iron leaders and gutters, flashings, etc.

*Commercial bronze wire screening is recommended for coastal areas and wherever there is excessive moisture in the air.

*Commercially pure copper wire screening under extreme salt-air conditions might have a slightly longer life than bronze, but bronze is by far the more popular type. Pure copper wire screening, due to the inherent physical characteristics of the metal, is somewhat softer and has a little less spring and rigidity than bronze.

Above material prepared by Insect Wire Screening Bureau.

For any additional information about insect wire screening write to the Insect Wire Screening bureau, 74 Trinity Place, New York 6, N. Y.

*Aluminum is also used for insect wire screening.

PLASTIC SCREENING:

A comparatively new plastic material is now available for insect screening having several distinctive features.

Plastic screening is used for screening windows, doors and porches on residential homes, summer residences and industrial buildings.

To apply simply fold cut edges under about half an inch, stretch tight and tack every two or three inches through the double thickness. Replace and tack moulding.

Plastic screening comes in 100 lineal feet rolls and widths in even inches: 24", 26", 28", 30", 32", 36", 42", and 48". Approximate weight per 100 square feet: 5½ lbs.

THE SARGENT INTEGRALOCK*

PRECISION BUILT

FAR AHEAD IN DESIGN! OUT FRONT FOR ENTRANCE DOORS!

One of the most important announcements in hardware history was made in June 1946 when Sargent & Company introduced the Sargent Integralock* — the first mortise-type unit lock. This lock is newly engineered from the ground up — based on advanced principles developed by Sargent & Company as leading producers of bomb shackles for Navy warplanes. It is a factory assembly, built of high strength materials. It is compact and foolproof because it contains fewer moving parts. It has a new and exclusive safety feature. In all, the Sargent Integralock is a vastly superior lock which, despite today's trend toward higher prices, *sells at a lower price* than pre-war unit locks!

Today, throughout the country, the Integralock is being specified by leading architects and hardware consultants. More and more the Integralock is becoming the most talked-about lock in hardware history.

NOTE THESE INTEGRALOCK FEATURES

The Sargent Integralock is an integrated factory assembly that assures easy and correct installation — so that a skilled carpenter can install several Integralocks in the same time necessary for one old-type mortise lock. Because the Integralock is precision-made of pressure-formed metals and contains 30% fewer moving parts, it will give more years of service without maintenance costs. It has the *exclusive* security feature of a shear pin engineered into the outside knob so that the knob cannot be forced; excessive pressure will simply cause it to spin harmlessly, with no effect on cylinder or latch. An Integralock is one of the handsomest locks to grace the doors of a home. It is proving immensely popular with home builders because it adds security and a new touch of distinction to the entrance door.

In a lock it's quality that counts. For more than 85 years — and today more than ever — the name Sargent has stood for highest quality in locks and in all builders' hardware.

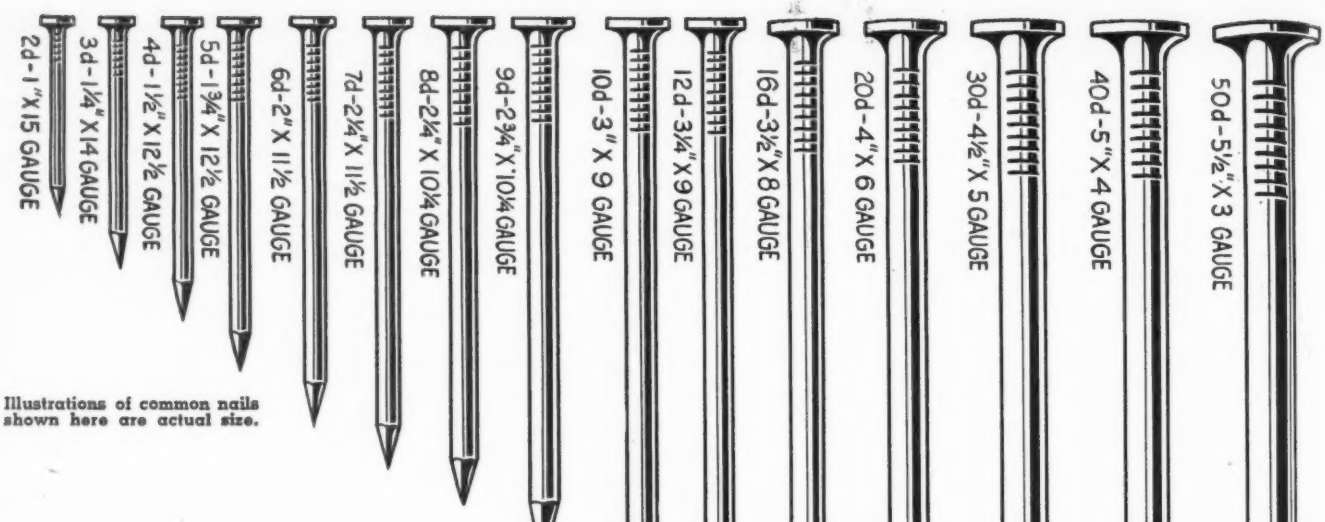
For name and address of your nearest Sargent Distributor, write Sargent & Company, Wallace St., New Haven 9, Conn. **Trade Mark*

Equally Appropriate for Every Type of Entrance Door

SARGENT & COMPANY

NEW YORK • NEW HAVEN, CONN. • CHICAGO

Makers of "LIFETIME LOCKS FOR LIFETIME USE"

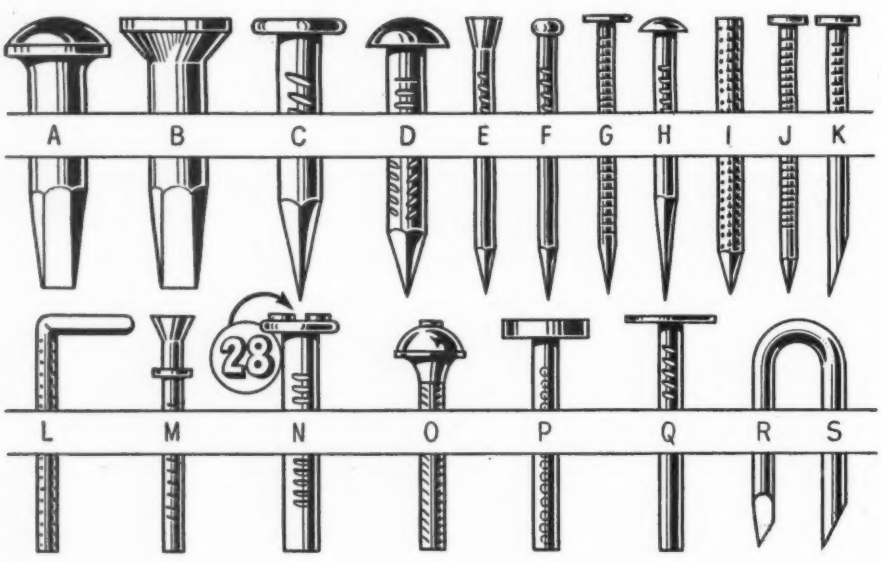


Illustrations of common nails shown here are actual size.

Origin of the term "penny" and its relation to the sizes of nails is rather obscure. One theory is that it originated about the 15th century. At that time penny first began to be used in designating nail sizes, in relation to the price per hundred. For example, a tenpenny nail was of a size and type used at that time that sold for tenpence per hundred.

Another theory is that use of the term penny to describe nail sizes came about through an effort to indicate the weight of the various sizes of nails. This theory is bolstered by the fact that (d), the English symbol for pound is used. For example, an "eight penny" (8d) nail was of a size that weighed eight pounds per thousand and was known as an "eight-pound" nail. Since the letter "d" is also the English symbol for penny, the two terms came to be used interchangeably until today an 8d nail is known as an eight penny nail.

Wire nail sizes have become standardized through usage and each "penny" size indicates a definite length, regardless of the weight which varies with the gauge, or diameter, and type of head. The type of head is also variable for different types of nails. By trade custom the nominal length of all nails, except cement coated and those with countersunk heads, is measured from the under side of the head to the tip of the point. Cement coated and countersunk nails are measured over their entire length, including the head.



SOME TYPES OF NAILS

(At Left)

A—Oval head, chisel point.

B—Flat head countersunk, chisel point.

C—Flat head, diamond point.

D—Round head, diamond point.

E—Countersunk head, diamond point. Used for casing and flooring.

F—Brad head, diamond point. Finishing nails.

G—Flat head, needle point.

H—Oval head, duck bill point.

I—Barbed dowel pin.

J—Flat head, diamond point.

K—Flat head, side point.

L—Metal lath nail.

M—Double head, countersunk.

N—Tie and pole markers.

O—Lead head.

P—Lead head.

Q—Large flat head.

R-S—Fence staple.

Nail Quantity Table With Nailing Instructions

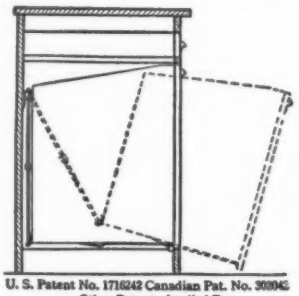
	Size of Nails	Nails each Bearing	Length of Nail	Gauge	Nails per Lb.	Lbs. Required 1000 Bd. Ft. 24"c.	16"c.	12"c.	Lb.	Nailing Instructions
1x 4 Boards and Shiplap	8d Common	2	2½	10¼	106	30	48	60		
1x 6 Boards and Shiplap	8d Common	2	2½	10¼	106	20	32	40		
1x 8 Boards and Shiplap	8d Common	2	2½	10¼	106	16	26	31		
1x10 Boards and Shiplap	8d Common	2	2½	10¼	106	13	20	25		
1x12 Boards and Shiplap	8d Common	3	2½	10¼	106	16	24	31		
2x 4 Boards and Shiplap	20d Common	2	4	6	31	..	82	..		
2x 6 Boards and Shiplap	20d Common	2	4	6	31	..	55	..		
2x 8 Boards and Shiplap	20d Common	2	4	6	31	..	41	..		
2x10 Boards and Shiplap	20d Common	3	4	6	31	..	50	..		
2x12 Boards and Shiplap	20d Common	3	4	6	31	..	41	..		
Base	8d Finish	2	2½	12½	189	..	..	..	1	Per 100 Lin. Ft.
Base Shoe										
Battens	4d Finish	..	1½	15	584	..	..	..	½	Per 100 Lin. Ft.
Bridging	8d Common	..	2½	10¼	106	.9	1.2	1.5	4	Nails each piece
Ceiling ½ or ⅝x4	6d Finish	1	2	13	309	6	8	11		
Ceiling ¾x4	8d Finish	1	2½	12½	189	9	14	18		
Corner Boards—Cornice										
Fascia 1x4	8d Box	..	..		..	..	..	..	1.5	Per 100 Lin. Ft.
Frieze 1x8	8d Box	..	..	..	..	..	..	..	2.2	Per 100 Lin. Ft.
Plancher 1x10 and 1x12	8d Box	..	..	..	..	..	..	..	2.5	Per 100 Lin. Ft.
Verge Board 1x6	8d Box	..	..	..	..	..	..	..	2.0	Per 100 Lin. Ft.
Bed Moulding	6d Casing	..	..	..	..	..	..	..	.5	Per 100 Lin. Ft.
Crown Moulding	6d Casing	..	..	..	..	..	..	..	.8	Per 100 Lin. Ft.
Finish ⅞ Inch	8d Finish	2	2½	12½	189	13	12	25		
Finish 1¼ Inch	10d Finish	2	3	11½	121	6	10	12		
Flooring 1x3 Soft Wood	8d Casing	1	2½	11½	145	21	32	42		
1x4 Soft Wood	8d Casing	1	2½	11½	145	16	24	30		
1x6 Soft Wood	8d Common	1	2½	10¼	106	11	16	22		
⅜x1½ Hard Wood	4d Casing	1	1½	14	473	..	10	13		Nail every 10 to 12"
⅝x2 Hard Wood	4d Casing	1	1½	14	473	..	8	11		Nail every 10 to 12"
⅝x2¼ Hard Wood	8d Casing	1	2½	11½	145	..	14	20		Nail every 14 to 16"
1x4 Refinished	8d Casing	1	2½	11½	145	18	..	..		Nail every 14 to 16"
2x6 D & M		1	4	6	31	..	20	35		
⅝x1½ Hard Wood	8d Casing	1	2½	11½	145	..	20	27		
Furring—										
1x2 on Brick Walls	20d Common Cut Nails	..	..	..	..	..	..	..	5¼	Per 100 Lin. Ft.
Grounds										
Gypsum Products										
Gyplap	7/16 Head Roofing Nail	..	¼	10½	147	..	..	..	14	Space 4" apart except under wood siding 8" apart
Rock Sheet ¼ Inch	4d Common	..	1⅜	14	488	..	..	..	4½	Nail 5 to 7" apart on ceiling
Rock Sheet ⅜ Inch	4d Common	..	1⅜	14	488	..	..	..	4½	Nail 6 to 8" apart on walls
Rock Sheet ½ Inch	6d Common	..	1⅝	13½	364	..	..	..	6	
Rock Wood Grain	4d Common	..	1⅜	15	488	..	..	..	3	Use flathead nail under trim
Rock Wood Grain	4d Common	..	1½	14	534	..	..	..	1½	Use finish nail in fielddrive at 45 degree angle
Tile Board	4d Common	..	1⅜	14	488	..	..	..	4½	Nail same as sheetrock but nail in field not in groove
Framing 2x4 to 2x12	20d Common	..	4	6	31	10	15	20		
	16d Common	..	3½	8	49	6	8	10		
	10d Common	..	3	9	69	4	6	8		
Girders—Built Up										
2x 6	16d Common	..	3½	8	49	..	..	..	2.0	Per 100 Lin. Ft. 30 pounds
2x 8	16d Common	..	3½	8	49	..	..	..	2.8	Per 100 Lin. Ft. Mixed 16d
2x10	16d Common	..	3½	8	49	..	..	..	3.5	Per 100 Lin. Ft. or/and 20d Com.
2x12	16d Common	..	3½	8	49	..	..	..	4.2	Per 100 Lin. Ft. Per M
Insulating Board										
½ Inch Building Board	4d Common	..	1½	12½	316	..	..	..		Exposed nailing No. 17 1¼ wire nail Concealed nailing 4d Com. or Box

	Size of Nails	Nails each Bearing	Length of Nail	Gauge	Nails per Lb.	24"c. 16"c. 12"c. Lbs. Required 1000 Bd. Ft.			Lb.	Nailing Instructions
1 Inch Building Board.....	8d Common		2½	10¼	106	..	..	..		Exposed nailing No. 17 2" Concealed nailing 8d Com. Nail above edges 3" oc—⅜" from edges or edge Intermediate 6" apart 12" oc.
Bevel Plank	4d Box		1¼	..	..	..	..	..		
Joist Flooring and Ceiling										
2x 6 and 2x 8.....	16d Common		3½	8	49	13	18	22		
2x10 and 2x12.....	16d Common		3½	8	49	14	15	16		
Lath										
½ Inch Insulating Board		..	1⅛	13	448	..	..	..	10	4d Box or 6d box may be used. Nail ⅜" from edge 4" oc 20 nails per lath
Plaster Board										½" from shiplapped edges

(Continued on Page 306)

Attention: Builders' Hardware Dealers

Introduce "Slidewell" to your Builders



U. S. Patent No. 1716242 Canadian Pat. No. 392045
Other Patents Applied For

The sensational new hardware for kitchen bins. Do away with the dangerous old-fashioned hinge type bin. **"SLIDEWELL"** is easy rolling — has finger-tip control. There is never any danger of pinching fingers. Also, so easy to remove for cleaning—just unhook and bin is free.

Because **"SLIDEWELL"** is entirely concealed it can be used with any type finish hardware. It is a packaged, ready-selling, over-the-counter item.

Write for free circular

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SPOT CORD

Reg. U. S. Pat. Off.

— the most durable material for hanging windows

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Available through most recognized jobbers

BUILDERS HARDWARE

★ See Our Attractive Line.

★ Write for this Special Catalog and Name of Nearest Jobber . . .

MANUFACTURERS OF allied BUILDERS' HARDWARE AND SPECIALTIES

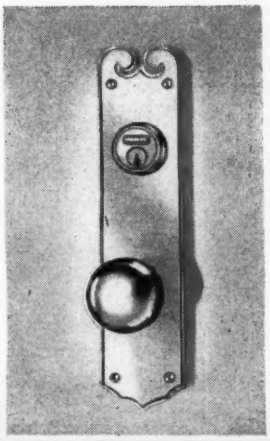
HARDWARE CORPORATION

328 Grand Avenue • Brooklyn 5, New York

"A MAN'S HOME IS HIS CASTLE..."

And There's an Appropriate BARROWS for It

Whether a house is a "pre-fab" to house the hopes of an ex-G. I. and his bride, or a triple-bath apartment on Park Avenue —the designer, builder (and owner's lady too) can bank on *Barrows Builders Hardware*, each to satisfy a personal viewpoint . . . be it the grace and charm of the Barrows line, its ease of installation and operation, or its long life. BARROWS is *the* Builders Hardware for a man's "castle."

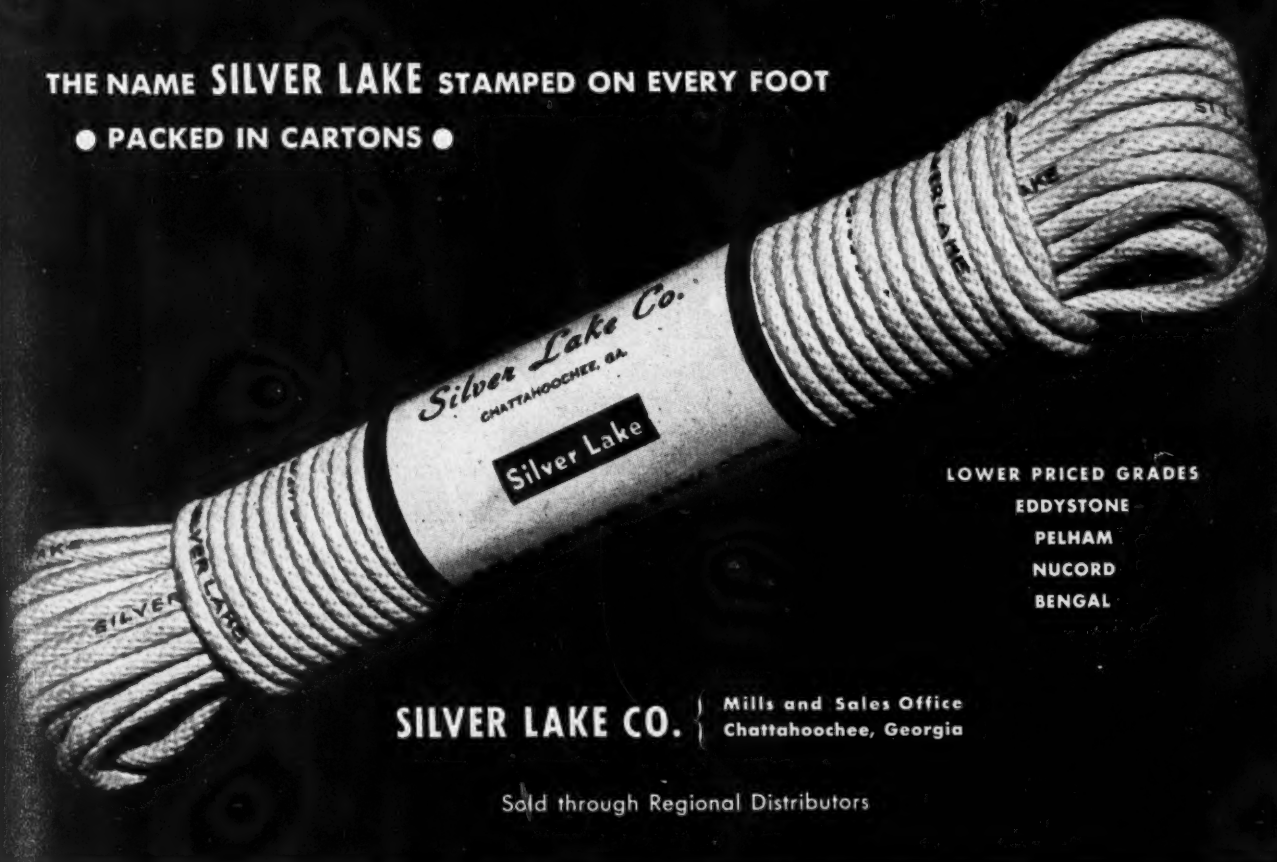


Bank on **BARROWS**

NORTH CHICAGO ILLINOIS

THE NAME **SILVER LAKE** STAMPED ON EVERY FOOT

● PACKED IN CARTONS ●



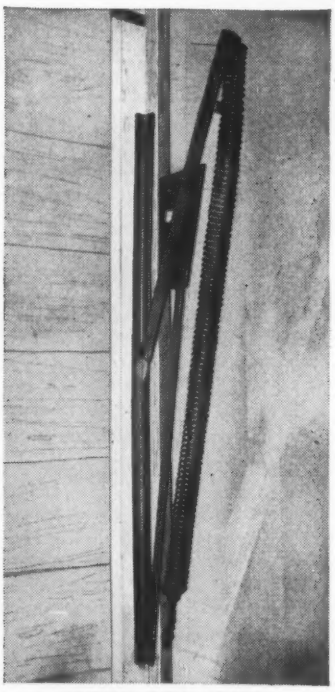
LOWER PRICED GRADES
EDDYSTONE
PELHAM
NUCORD
BENGAL

SILVER LAKE CO. | Mills and Sales Office Chattahoochee, Georgia

Sold through Regional Distributors

BUILDERS! HOME OWNERS!

TAVART



OVERHEAD GARAGE DOOR HARDWARE

Install Tavart, the modern garage door hardware on every job, old or new.

Any carpenter can build the door and install with Tavart.

Tavart saves time, saves space, saves money.

Easy to adjust, built of steel to last a lifetime.

IT'S ALL ON THE JAMB

NO ARMS NO POSTS NO TRACKS

DEALERS: Ask your jobber about Tavart prices and FREE demonstration model . . . Or, write for name of jobber nearest you.

SOLD WHEREVER GOOD BUILDING HARDWARE IS SOLD

TAVART COMPANY, LTD.

LOS ANGELES 13, CALIFORNIA

A Good Book For Estimating

"HOW TO ESTIMATE FOR THE BUILDING TRADES," a most complete and practical book on the estimating of materials and labor for residences and small buildings. It covers all formal estimating processes and includes a complete explanation of all the things one needs to know to do a thorough job. Blueprint reading and mathematics used by estimators are explained in full. It even teaches how to do the actual work of the various trades. More than 500 questions with answers worked out in detail and references to actual plans are included. Among subjects covered are: excavations, masonry, carpentry, electricity, sheet metal, lath and plaster, marble and tile, painting, hardware, linoleum, heating and air conditioning, plumbing, glass, curtains and shades. The book of 633 pages contains 310 illustrations, 45 tables, 8 full size blue prints of scale drawings. **Price postpaid, $5.50.**

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THE

Seneca Wire & Mfg Co.
FOSTORIA, OHIO

Faster, Accurate Drilling in Masonry WITH THE

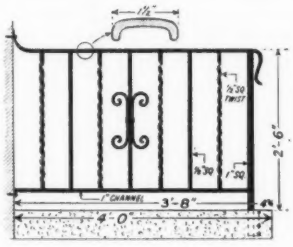
CYCLONE

Carbide Tipped ROTARY BIT

Fit Hand Brace, Portable Drill and Drill Press

Drill in concrete, brick, tile, slate, stone the new *Easy Way*. "Cyclone" Rotary Drills, with carbide tip, drill 4 to 8 times faster, stay sharp longer and outlast steel bits 50 to 1. The improved deep-fluted design of Cyclone Drills permits even easier, faster drilling — assuring longer life and accurate holes even when close together. Give Cyclone Drills a trial. **Now available in handy kit of six popular sizes or individual protective packs.**

New England CARBIDE TOOL CO., INC.
CAMBRIDGE, MASSACHUSETTS



This is Style MC. Three stock sizes. 32" length priced at $18.42 less trade discount.

ORNAMENTAL IRON RAILINGS THAT POSSESS EXCEPTIONAL BEAUTY AND OUTSTANDING CRAFTSMANSHIP . . . *AT MODERATE PRICES!*

These entrance railings have eye appeal . . . and that means customer acceptance. Dealers and Jobbers are confronted with a big market for these fine railings. Substantial trade discounts make this line very attractive from a profit angle. Four handsome designs at list prices ranging from $17.26 to $40.09 per pair in stock for immediate delivery. We specialize in railings . . . all sizes . . . all kinds. Write for descriptive literature and trade discounts.

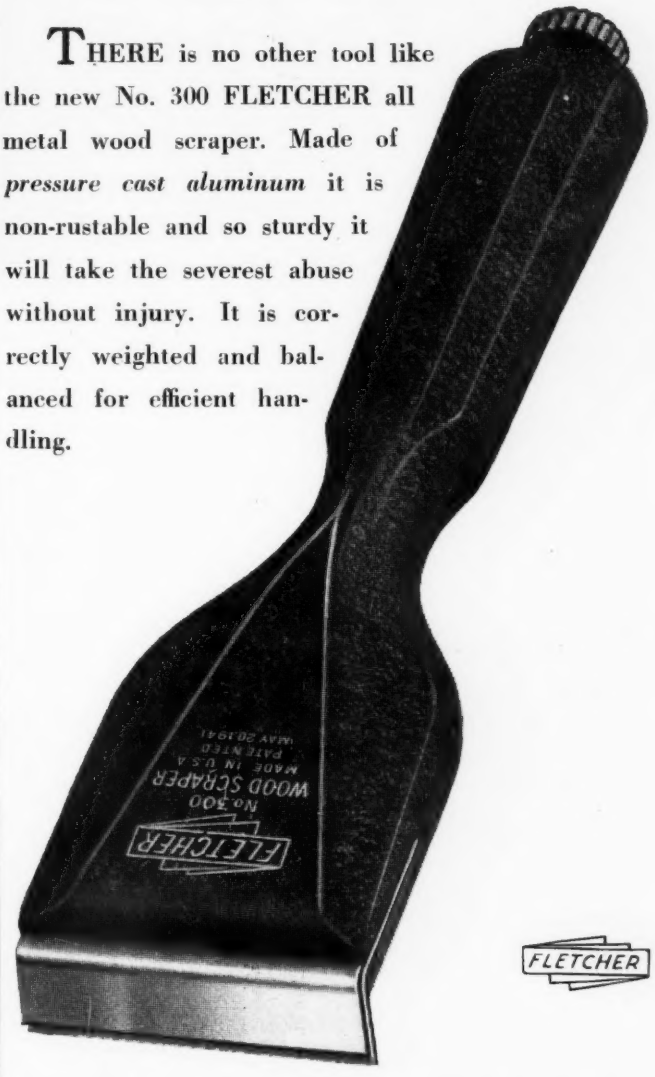
●

METAL CRAFTERS

— Railing Specialists —
E Avenue and 18th Street NE
CEDAR RAPIDS, IOWA

A *NEW* TOOL WITH EXCLUSIVE FEATURES

THERE is no other tool like the new No. 300 FLETCHER all metal wood scraper. Made of *pressure cast aluminum* it is non-rustable and so sturdy it will take the severest abuse without injury. It is correctly weighted and balanced for efficient handling.



FLETCHER

THE NO. 300 WOOD SCRAPER—

Metal to metal contact insures a positive grip on the blade which can be released instantly by a slight turn of the locking nut. Three double edge blades are furnished with each scraper—one standard, one extra long and one serrated. Long blades extend beyond both sides of the scraper.

Stock this sensational tool while it is *new*. Send at once for complete particulars. Sales will be high.

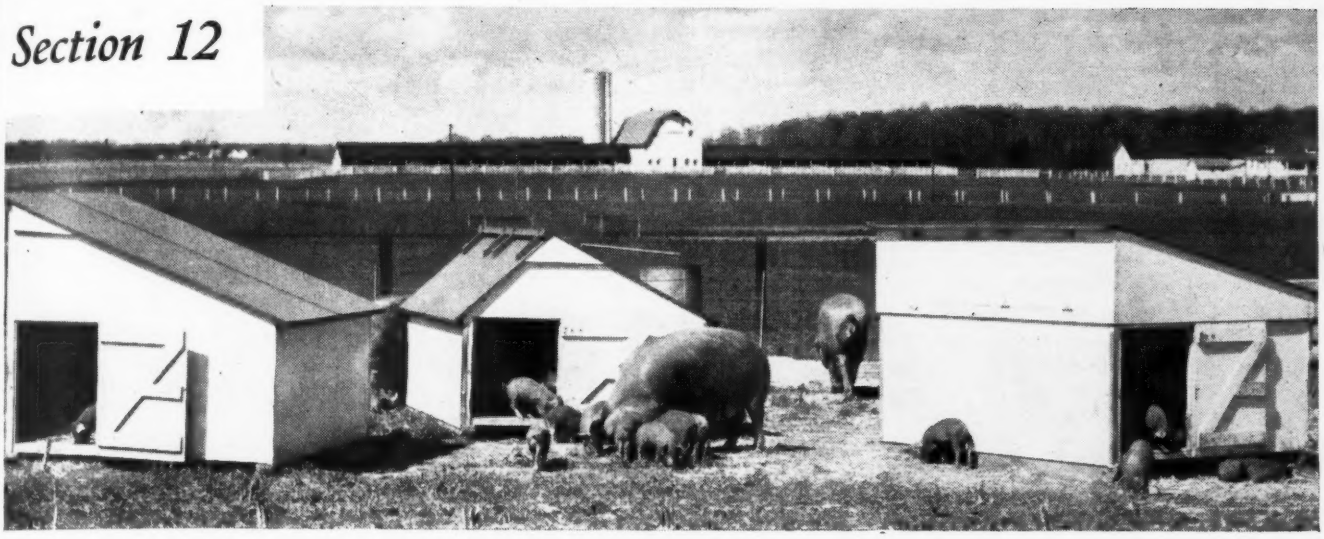
Other FLETCHER fast selling profit builders you should now be stocking are wood handle scrapers, the popular FLETCHER glass cutters and the FLETCHER electrical putty softener . . . the tool that saves hours of hard labor. Order now for the early summer consumer demands.

THE FLETCHER-TERRY CO.

FORESTVILLE, CONNECTICUT

	Size of Nails	Nails each Bearing	Length of Nail	Gauge	Nails per Lb.	Lbs. Required 1000 Bd. Ft. 24"c.	16"c.	12"c.	Lb.	Nailing Instructions
1 Inch Insulating Board		..	1¾	13	291	..	..	..		6" apart on all supports
Plaster Board										
Metal Lath	7/16 Head Roofing Nail	..	2	10½	126	..	..	..	17½	Drive nails well in and bend to engage at least 2 strands of lath
Rock Lath	Plaster Board	5	1⅛	13	419	..	..	..	9	Nail 4" apart—5 nails per stud
Wood Lath	3d Fine	1	1⅛	15	778	..	..	..	7	Per 100 Lath
Plywood ¼ Inch.....	4d Common	..	1½	12½	316	6	9	12		
5/16 Inch	6d Common*	..	2	11½	181	..	..	..		
⅜ Inch	6d Common*	..	2	11½	181	..	..	..		
½ Inch	7d Common*	..	2¼	11½	161	8	12	16		
⅝ Inch	8d Common*	..	2½	10¼	106	..	..	..		
¾ Inch	10d Common*	..	3	9	69	14	21	28		
When nailing ¼ inch Plywood it will require about 5 pounds per 1000 square feet of 4d finish nails or 9 pounds of 4 inch flat head nails where battens are not used; and about 4½ pounds of 4d flat head nails together with 3 pounds of 4d finish nails where battens are used to cover joints spaced 4 feet 0 inches apart. *Preferably cement coated nails.										
Roofing Metal Roll Roofing	Coldwar Rfg. Nail.	..	1½	..	..	..	..	..		Reroofing over wood shingles
Shingles—Roof Asbestos (New Work)....	Rfg. Nail	..	1¼	10	170	..	..	..	1½	Per Square American Colonial No. 607—4 nails per shingle
Asbestos (Old Work).....	Rfg. Nail	..	2	10	110	..	..	..	2½	Per Square American Colonial No. 607—4 nails per shingle
Asphalt (New Work).....	Rfg. Nail	..	1	10	190	..	..	..	6	Per square for Thickbutts
Asphalt (Old Work).....	Rfg. Nail	..	1¾	10	130	..	..	..		
Wood (New Work).....	3d Gal.	..	1¼	13	429	..	..	..	4½	
Wood (Old Work).....	Rfg. Nail	..	2	10	110	..	..	..		
Sheathing ½ Inch Vapor Seal.....	6d Common	..	2	11½	181	..	..	..	1½"	Roofing Nails ⅜" heads may be used on ½"
¾ Inch Vapor Seal.....	8d Common	..	2½	10¼	106	..	..	..	1¾"	Roofing Nails ⅜" heads may be used on ¾" nail edges 3" apart ⅜" from edge —Intermediate nailing 6" apart.
Siding-Bevel ½x 4	6d Box	1	2	12½	236	..	18	23		
½x 6	6d Box	1	2	12½	236	..	15	15		
½x 8	6d Box	1	2	12½	236	..	10	12		
¾x10	7d Box	2	2¼	12½	210	..	35	45		
¾x12	7d Box	3	2¼	12½	210	..	50	60		
Siding Drop 1x4	7d Box	2	2¼	12½	210	22	35	45		
1x6	7d Box	2	2¼	12½	210	15	23	30		
Siding Wood Shingle Exp. 6 Inch.	3d Gal.	..	..	..	..	..	..	..	4	Per Square
Wood Shingle Exp. 7½ In.	3d Gal.	..	..	..	..	..	..	..	3	Per Square
Asbestos Side Wall New Work	Gal. Rfg. Nail....	..	1¼	..	..	..	..	..	1	Per Square (Face nails Inc. with shg.)
Old Work		..	2	..	..	..	..	..	1½	Per Square (Face nails Inc. with shgs.)
Insulated Brick Studding 2x4 Mixed	16d Common	..	3½	8	49	..	..	..	15	Per 1000 Bd. Ft.
2x6 Mixed	8d Common	..	2½	10¼	106	..	..	..	15	Per 1000 Bd. Ft.
Trim—Side of Door and Window	4d Finish	..	1½	15	584	..	..	..	½	Per Side of Trim
	6d Finish	..	2	13	309	..	..	..	½	Per Side of Trim
	8d Finish	..	2½	12½	189	..	..	..	½	Per Side of Trim
Wall Board 3/16	3d Common	..	1¼	14	568	..	..	..	5	Per 1000 Sq. Ft.
¼ Inch	4d Common	..	1½	12½	316	..	..	..	9	Per 1000 Sq. Ft.
⅜ Inch	4d Common	..	1½	12½	316	..	..	..	9	Per 1000 Sq. Ft.
Miscellaneous Celo—Siding	8d Common	..	..	..	..	..	..	..		4½" oc intermediate nailing and edge supports ⅜" from edge
⅛ Inch Flexboard	No. 1x1 Button Head Drive Screw Nails	..	..	..	..	..	..	..		
5/32 Inch Flexboard.....	Same as above...	..	..	..	..	..	..	..		

Section 12



Farm Equipment & Supplies

CONTENTS OF THIS SECTION

Housing Animals
- The Hog
- Cattle
  - Beef
  - Dairy
- Poultry
- Sheep

Housing Produce
- Corn
- Other grains
- Hay
- Cotton
- Tobacco
- Vegetables
- Fruits
- Milk, butter and cheese

Housing Machinery
- Portable and prefabricated buildings
- Farm Hardware
- Fences and gates
- Farm machinery and operating mechanisms
- Electrical supplies and appliances

Insulation on the farm
Cement and Clay products on the farm
Repairs and Improvements to the farmstead
Selling tips and helps for the salesman

For Related Sections See Master Index

In the other sections of the Product Data Manual we have dealt primarily with the commodities and inventory items you have to sell, and secondarily with the uses.

In this section we will reverse this procedure for two reasons: (a) *practically every sales item listed in every other section of this book is saleable on the farm* (There is no point in duplicating these commodity lists) and (b) the multiplicity of farm needs listed here will reveal to dealers and their salesmen the tremendous creative selling opportunity in this market.

It is a known fact that one third as many families will support a dealer's salesman in a farming area as compared with a town or city market.

Because of the necessity of housing his livestock, produce and machinery in addition to his family, the farmer buys three to five times as much building products as the average city dweller.

Forty percent of all the family buying power in America is held by farm families. Seventy-six percent of all dealers and 58 percent of all building material sales are made in towns of 20,000 or less.

Even metropolitan dealers have been known to do as much as 20 percent of their business in this market.

The annual income of American farmers nears 30 billions of dollars. One farm family in every six expects to improve their homes or other buildings. Sixty-eight percent of all farm families expect to spend an average of $271.00 per farm for electrical appliances alone.

The farmer's condition is the best in history. His mortgage debt has been heavily liquidated. Seventy percent of farm families have the cash available for necessary new buildings and repairs. Farm bank accounts have grown 3 times as rapidly as city accounts during the war period.

City living standards have come progressively nearer the farms. The rural electrification program has brought light and power to the farms. The majority of farmers and their wives are determined to reduce the physical labor and drudgery of farm housekeeping. Mechanization of farms is proceeding apace. But less than 20 percent of American farms have indoor toilets and bathtubs, and central heating plants.

The dealer has two basic things to sell the farm—(a) increased living standards for the farm family, and (b) increased productivity and profit in farm operations.

Any dealers with a rural market could set up a quota of one new farm home per year for each forty families, and one new barn per year for each eight

families over the next five years. This in addition to the enormous market for other types of buildings and building improvements and specialties.

There are 7,400,000 occupied farm homes, 35 percent of which need exterior repairs and improvements and 45 million other buildings, 75 percent of which need improvement.

This spells an opportunity so great that many types of aggressive building product merchants other than lumber dealers have, in increasing numbers, begun to service this market.

However, because he is the nearest available merchant, the lumber and building product dealer has the inside track on this business if he will aggressively organize to service it.

It is to assist such organization by the dealer that this section has been prepared.

We will attempt to portray here, in terms of reliable services, a complete farm department for each dealer to study, and to determine the limits of his individual approach and service to local farmers.

SALES ITEMS

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

Housing the Hog

( ) A-Type Hog House
( ) Arched-roof Hog Houses
( ) Barns
( ) Breeding Rack & Stanchion
( ) Brooder Houses
( ) Brooder Stoves
( ) Brooders
( ) Chutes
( ) Colony Houses
( ) Cots
( ) Dipping Vats
( ) Electric Pig Brooders
( ) Farrow Houses
( ) Feeding Floors
( ) Fountains
( ) Loading Ramps
( ) Mineral Feeders
( ) Movable Houses
( ) Oils
( ) Oilers, Pasture Shade & Shelter
( ) Pens
( ) Pig Creeps
( ) Rotary Oilers
( ) Rings
( ) Scrapers
( ) Self-Feeders
Alfalfa
Corn
( ) Shed Roof Hog Houses
( ) Shipping Crates
( ) Sun Shades
( ) Troughs
( ) Vaccinating Racks
( ) Watering Trough
( ) Wallows

Housing Cattle

( ) Arched-Roof Barns
( ) Beef Cattle Barns
( ) Breeding Racks & Stalls
( ) Bull Pens
( ) Calf Barn
( ) Calf Feeders
( ) Cattle Chutes
( ) Cattle Feeders
( ) Cattle Guards
( ) Cattle Sheds
( ) Corrals
( ) Cupolas
( ) Dairy Cattle Barns
( ) Dairy Cold Box
( ) Dehorning Chutes
( ) Feed Locks
( ) Feeding Bunks
( ) Feeding Floors
( ) Gable Roofed Barns
( ) Gambrel Roof Barns
( ) General Purpose Barns
( ) Grain Bunks
( ) Loafing Sheds
( ) Mangers
( ) Milking Pens
( ) One Story Barns
( ) Open Shed Milking Stables
( ) Self Feeders
( ) Silos
( ) Stalls
( ) Stalls
( ) Stanchions
( ) Summer Shelters
( ) Tanks
( ) Troughs
( ) Two Story Barns
( ) Ventilators
( ) Waterers

Housing Sheep

( ) Dipping Vats
( ) Feeding Racks
( ) Feeding Troughs
( ) Lamb Brooders
( ) Lamb Feeders
( ) Sheep Barns
( ) Sheep Pens
( ) Sheep Sheds

Housing Horses

( ) Corrals
( ) Horse Barns
( ) Range Shelters
( ) Shelter Pens

Housing Poultry

( ) Baby Chick Waterers
( ) Benson Type Poultry Feeders
( ) Brooder Draft Controls
( ) Brooder House Heaters
( ) Brooder Houses
( ) Chick Feeders
( ) Chick Fountains
( ) Colony Brooder Houses
( ) Dropping Boards
( ) Dry Mash Feeders
( ) Egg Shipping Cases
( ) Flock Feeders
( ) Fowl Killers
( ) Heated Fountains
( ) Hen Feeders
( ) Hovers
( ) Incubators
( ) Inside Mash Hoppers
( ) Laying Houses
( ) Laying Nests
( ) Laying Traps
( ) Leg Bands
( ) Movable Roosting Shelters
( ) Oyster Shell Feeders
( ) Poultry Alfalfa Racks
( ) Poultry Coops
( ) Poultry Fencing
( ) Poultry Helmets
( ) Poultry Netting
( ) Poultry Pickers
( ) Poultry Scalders
( ) Poultry Scales
( ) Poultry Shelters
( ) Poultry Sun Parlors
( ) Range Feeders
( ) Range Shelters
( ) Roosting Frame for Turkeys
( ) Roosts
( ) Sanitary Runways
( ) Self Cleaning Nests
( ) Shipping Cases
( ) Shipping Coop
( ) Straw Loft Poultry Houses
( ) Turkey Nests
( ) Waterers
( ) Wing Bands
( ) Wire Baskets

Housing the Products of the Farm

( ) Combination Hog Houses & Grain Storage
( ) Combination Poultry Houses & Grain Storage
( ) Corn Cribs
( ) Grainaries
( ) Grain Bins
( ) Grain Boxes
( ) Grain Elevators
( ) Hay Barns
( ) Hay Sheds
( ) Pole Corn Cribs
( ) Silos
( ) Stack Covering

Miscellaneous

( ) Dairy Cold Boxes
( ) Egg Candling Rooms
( ) Farm Bottling Plants
( ) Meat Houses
( ) Milk Houses
( ) Smoke Houses

Vegetables & Fruits

( ) Apple Box Elevators
( ) Apple Storage
( ) Bushel Crates
( ) Fruit Cellars
( ) Potato Hoppers
( ) Potato Houses
( ) Vegetable Storage

Housing Machinery.

( ) Machine Sheds
( ) Combination Shed & Shop
( ) Combination Shed & Garage
( ) Machine Shelters
( ) Laminated Rafters for Curved Roof Sheds

AMERICAN CHAMPIONS

Champion Lamb

Wayne Disch, Evansville, Wisconsin, raised this Southdown lamb which took championship honors in the Junior Live Stock Feeding Contest held in conjunction with the 1946 International Live Stock Exposition. His entry weighed 105 pounds — sold for $5.00 per pound.

Champion Fence—"U·S·S AMERICAN"

Livestock, whether it be ordinary stock or championship stock, should be protected by the best fence obtainable—U·S·S American Fence. Mr. Disch, breeder of champion livestock, writes, "We installed some American Fence about eight years ago and it still looks real good. We like it very much."

It is all around good service like this, year after year, that has made American Fence a "best seller" in every part of the country. But this is not all—farmers read the farm papers and listen to the radio where they get the story of American Fence and U·S·S Steel Products every week. They are urged to visit the U·S·S Dealer when they want steel products. So, if you sell fence, barbed wire, or nails, sell American—back a champ.

USS AMERICAN FENCE UNITED STATES STEEL

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
COLUMBIA STEEL COMPANY, *San Francisco*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
United States Steel Export Company, New York

UNITED STATES STEEL

LISTEN TO . . . ***The Theatre Guild on the Air,*** **presented every Sunday evening by United States Steel. American Broadcasting Company, coast-to-coast network. Consult your newspaper for time and station.**

There's more AMERICAN FENCE in use than any other brand.

Farm Equipment & Supplies

Yard—Fabricated Portable Farm Buildings.

( ) Poultry Houses
- ( ) Metal
- ( ) Wood
- ( ) Asbestos

( ) Hog Houses
- ( ) Metal
- ( ) Wood
- ( ) Asbestos

( ) Milk Houses
- ( ) Metal
- ( ) Wood
- ( ) Asbestos

( ) Calf Sheds
( ) Tanks
( ) Hay Racks
( ) Hog Troughs
( ) Utility Houses
( ) Bunk Houses
( ) Farrowing Houses
( ) Road Side Stands
( ) Grain Bins
( ) Brooder Houses
- ( ) Hog
- ( ) Chicken

( ) Self Feeders
( ) Loading Chutes
( ) Billboards
( ) Smoke Houses
( ) Farm Tenant Houses
( ) Windmill Towers made with Lumber Connectors

Hardware for the Farm (See Hardware Section).

( ) Barn & Garage Door Stops
( ) Barn Door Hardware
( ) Barn Door Latches
( ) Barn Door Pulls
( ) Barn Door Rollers
( ) Barn Door Stays
( ) Barn Door Tracks & Hangers
( ) Bean Poles
( ) Binder Twine
( ) Chain Bolts
( ) Cow Bells
( ) Cow Stalls
( ) Crow Bars
( ) Dinner Bells
( ) Disinfectants
( ) Door Handles & Pulls
( ) Door Holders
( ) Door Knockers
( ) Electric Fly Screens
( ) Feed Boxes
( ) Fire Extinguisher
( ) Foot Bolts
( ) Gaskets
( ) Gate Hinges and Fasteners
( ) Grind Stones
( ) Hand Pumps
( ) Harness
( ) Hay Forks
( ) Hay Knives
( ) Horse Blankets
( ) Lanterns
( ) Litter Carriers
( ) Mangers
( ) Rope
( ) Salt Boxes
( ) Scythes
( ) Sheep Bells
( ) Sickles
( ) Slop Barrels
( ) Stall Guards
( ) Tank Heaters
( ) Tomato Sticks
( ) Tools
( ) Turkey Bells
( ) Well Buckets
( ) Well Chains
( ) Well Ropes
( ) Whet Stones
( ) Wire Stretchers
( ) Wrecking Bars

Farm Fencing and Gates.

( ) Barbed Wire
( ) Chick Mesh Poultry Fence
( ) Close Spaced Poultry Fence
( ) End Posts
- ( ) Steel
- ( ) Wood

( ) 26" Hog and Field Fence
- ( ) 14½ Gauge
- ( ) 14½ Gauge
- ( ) 12½ Gauge
- ( ) 12½ Gauge
- ( ) 11 Gauge
- ( ) 11 Gauge
- ( ) 9 Gauge
- ( ) 9 Gauge

( ) 32" Hog and Field Fence
( ) Post Drivers
( ) Poultry Netting
( ) Spiral Stays
( ) Steel Corner Posts
- ( ) Steel
- ( ) Wood

( ) 39" Stock and Field Fence ( ) 47" ( ) 55"
- ( ) ( )
- ( ) ( )
- ( ) ( )
- ( ) 12½ Gauge
- ( ) 12½ Gauge
- ( ) 12½ Gauge
- ( ) 11 Gauge
- ( ) 11 Gauge
- ( ) 11 Gauge
- ( ) 9 Gauge
- ( ) 9 Gauge
- ( ) 9 Gauge

( ) 47" Stock and Field Fence
( ) 55" Stock and Field Fence
( ) Wire Stretchers

Gates

( ) Gate Posts
- ( ) Steel
- ( ) Wood

( ) Side Wall Gates
( ) Tilting Gates

Rough Hardware—Wire Fencing.

( ) **Barbed Wire**—Sold in 80 rod rolls. Two gauges, 14 and 12½. Two types—2 point and 4 point. Two spacings—4" and 5".

( ) **Farm Fence—All Purpose**—Sold in 330 ft. rolls. 3 Weights: Light, 11 Gauge top and bottom wire; 14½ gauge live and stay wire; Medium, 10 gauge top and bottom wire: 12½ gauge live and stay wire; Heavy, 9 gauge top and bottom wire; 11 gauge live and stay wire. Heights 26", 32", 39" and 47".

( ) **Galvanized Smooth Wire**—Comes in 3 gauges—9, 12 and 14.

( ) **Heavy Weight Poultry Fences**—Comes with variable mesh ranging from 1½" at bottom 5" at top; also in 48", 60" and 72" heights. Stay wires are 6" apart. Top and bottom wires 11" gauge. Live and stay wires 14" gauge.

( ) **Poultry Netting**—Made from full-gauge steel wire—galvanized before weaving. Use 2" mesh for large poultry, 1" for small chicks. Comes in 150 ft. rolls. Chick netting comes 12", 24" and 36" lengths. Poultry netting comes 48", 60" and 72".

( ) **Welded Wire Pen & Utility Steel Fabric**—For poultry floors, corn cribs, trellis, feeding racks, tree guards, sorting screen, etc.
Mesh sizes 1 x 1, 1 x 2 and 2 x 4.
Gauges 15, 14 and 12½.
Widths 24", 36" and 60".

Additional Items:
- ( ) Electric Fence Equipment
- ( ) Post Hole Diggers
- ( ) Posts and Gates
- ( ) Staples for Fencing
- ( ) Wire Reelers

Farm Operating Equipment (Mechanical)

( ) Conveyors
( ) Corn Pickers
( ) Corn Shellers
( ) Deep Freeze Units
( ) Dirt Moving Tools
( ) Dusters
( ) Electric Water Systems
( ) Home Lighting Plants
( ) Individual Electric Plants
( ) Irrigation Pumping Unit
( ) Lightning Rods
( ) Power Pumps
( ) Rakes
( ) Refrigerators
( ) Separtors
( ) Shallow Well Systems
( ) Skids
( ) Sprayers
( ) Water Heaters
( ) Water System
( ) Windmills

Electricity on the Farm

(63% of all Farms are now equipped with Electricity.)

( ) Churning
( ) Cider Presses
( ) Cistern Pumps
( ) Clippers
( ) Cream Separators
( ) Dehydrators (Fruit & Vegetable)
( ) Dish Washing Machines
( ) Electric Appliances See Sections 13 & 14
( ) Electrified Fence
( ) Electric Churn

HIGH SIGN

HUDSON

TO PROFITS

Tested and Proved
EQUIPMENT

The HUDSON *Plan for Extra Profits*

FIRST QUALITY ONLY—ALWAYS—
To make Lifetime Customers for Dealers

EQUIPMENT OF EXCLUSIVE DESIGN
Best for Users—Most Profitable for You

BASIC INVENTORIES OF LEADING LINES
To Assure Fast Turnover, Bigger Net Profits

STEADY ADVERTISING TO USERS—
To Send More Buyers to Your Store

PRACTICAL POINT-OF-SALE HELP—
To Pull Them in and Sell Them Fast

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This Month and Every Month Millions Read:

"BUY AT THE SIGN OF THE HUDSON"

Do you want the best buyers in your trading area coming to *your* store to ask for *your* lines of equipment? Do you want to sell the lines that are advertised to *more* people in *more* magazines than any others in their field? Sure, you want it—and that's what HUDSON gives you. HUDSON tells prospects in leading national and regional magazines:

"Buy equipment with the 'Diamond-H' trademark—it means extra value, longer service, more labor saved. Buy at the HUDSON dealer."

That means extra sales, extra profits for you. Ask your jobber about the HUDSON Dealership—it's the "High Sign to Profits."

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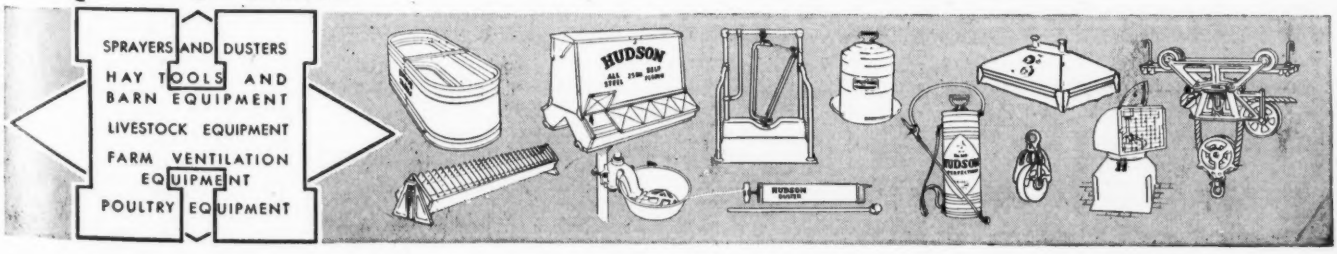


Farm Equipment & Supplies

Electricity on the Farm.

( ) Electric Driers
( ) Electric Tools
( ) Ensilage Cutters
( ) Fans, Cooling, Exhaust & Ventilating
( ) Food & Meat Freezing
( ) Frozen Food Storage
( ) Gasoline Pumps
( ) Humidifiers
( ) Huskers & Shredders
( ) Ice Cream Freezers
( ) Incubators
( ) Infra-Red Heat Lamp
( ) Insecticide Sprayer
( ) Insect Traps
( ) Irrigation Pumps
( ) Kitchen Power Units
( ) Lamps, Incandescent
( ) Lamps, Portable
( ) Lighting Fixtures
( ) Milk Cooling
( ) Milk Warmers
( ) Milking Machines
( ) Portable Motors
( ) Pumps, All Kinds
( ) Radiant Heaters
( ) Radiators, Various Types for General House Heating
( ) Ranges
( ) Refrigeration
( ) Refrigerators
( ) Saws, Large & Small
( ) Space Heaters
( ) Stokers
( ) Sun Lamps
( ) Table Stoves
( ) Tank Heaters
( ) Tool Grinding
( ) Water Heaters
( ) Water Systems

Cement and Concrete on the Farm.

( ) Approaches
( ) Bins
( ) Cattle Guards
( ) Cess Pools
( ) Circular Brick Cistern
( ) Concrete Cistern
( ) Concrete Cistern Filter
( ) Concrete Floors and Foundations for
  ( ) Barns
  ( ) Cattle Pens
  ( ) Corn Cribs
  ( ) Hog Houses
  ( ) Milk Houses
  ( ) Poultry Houses
  ( ) Storage
( ) Concrete Manure Pit
( ) Concrete Milk Cooling Tanks
( ) Concrete Storage Tanks
( ) Concrete Stock Tanks
( ) Concrete Wallowing Pools
( ) Culverts
( ) Drain Tile
( ) Driveways
( ) Feeding Floors
( ) Fence Posts
( ) French Silos
( ) Hog Wallows
( ) Ice Houses
( ) Manure Pits
( ) Masonry Smoke House
( ) Septic Tanks
( ) Silos
( ) Tanks
( ) Terraces

Paint on the Farm—See Paint Section.

Repairs and Improvements to the Farmstead.

( ) Add New Rooms
( ) Bathroom Remodeling
( ) Finish Attic
( ) Fireplaces
( ) Fix Crumbling Foundations
( ) Garden Equipment
( ) Glass Enclosed Porches
( ) Install Electrical Fixtures
( ) Install Electrical Wiring
( ) Install Heating System
( ) Install Plumbing
( ) Insulation (all animal housing)
( ) Insulate Farm Home
( ) Kitchen Remodeling
( ) Landscaping
( ) Lawn Furniture
( ) Making Cellars Dry
( ) New Garage
( ) New Hardwood Floors
( ) New Roofs (all buildings)
( ) New Side Walls
( ) Oil Burners
( ) Painting
( ) Picket Fences
( ) Ratproofing
( ) Redecorate
( ) Screened Porches
( ) Screens
( ) Sewage Disposal Plant
( ) Stokers
( ) Storm Windows
( ) Termite Treatment
( ) Weatherstripping

Items Asked For But Not Normally Stocked

Stall Measurements

COW STALLS:

Dimensions vary according to breeds. On the average a 3'—6" width and a 5'—0" length between the manger and the gutter are considered adequate for most farm cows. However, if pure bred dairy cattle comprise the herd, larger dimensions may be needed. The table below shows possible variations.

Breeds	Width	Length of Platform		
		Small	Medium	Large
Holstein	3'-6" to 4'-0"	4'-10"	5'- 2"	5'-8"
Shorthorn	3'-6" to 4'-0"	4'- 8"	5'- 0"	5'-6"
Ayrshire	3'-6" to 3'-8"	4'- 6"	5'- 0"	5'-6"
Guernsey	3'-4" to 3'-6"	4'- 6"	4'-10"	5'-4"
Jersey	3'-4" to 3'-6"	4'- 4"	4'- 8"	5'-0"
Heifers	2'-9" to 3'-2"	3'- 8"	3'-10"	4'-2"

Note: Although stalls less than 3'—6" in width are shown, they should be avoided if at all possible. Neither are stalls shorter than 4'—10" very desirable.

MANGERS:

Vary from 24" to 32" in width. Corresponding front heights are listed below.

Width	Front Height
24"	12"
28"	18"
32"	24"

Concrete is considered the best material for cow mangers. It provides a permanent feeding trough which can be cleaned thoroughly and easily.

GUTTERS:

Always 16" wide, no more, no less. This permits cleaning with the ordinary scoop.

ALLEYS:

Cows facing in, feed alley 6'—0" to 8'—0"
litter alley 3'—6" to 5'—0"
Cows facing out, feed alley 3'—0" to 5'—0"
litter alley 6'—0" to 10'—0"

HORSE STALLS:

Width —Single stalls 5'—0"
Double stalls 8'—0"
Length —16' from front of manger to rear wall.
Caution: This dimension should never be decreased or the horses probably will kick out the side of the barn.
Partition Length—10'—0" from front of manger.
Manger —Width 2'—0".
Height to top from floor—3'—6".
Feed Box— Width 12" in the clear.
Length—width of manger.
Depth—not less than 8".
Box Stalls—12' x 12' minimum, 12' x 14' preferable.

Get Ready

FOR THESE SALES LEADERS

The great demand that now exists for fencing, galvanized roofing and siding and other steel products will continue. With farm customers insisting more and more on steel products built for longer, better service, Continental quality will boost sales for hundreds of dealers. The popular Continental line includes: Tyl-Lyke, corrugated and 12 other types of steel roofing and siding; Flame-Sealed fence with the Pioneer and Champion knots and 14 other styles of farm fence. It includes posts and gates, nails, staples, and other steel products for making farm improvements. Though demand still exceeds production, this mighty market is being directed to Continental dealers by consistent farm paper advertising and by helpful services to farmers. Ask your jobber about the Continental program or write—.

SEE THIS SALES-BUILDING PROGRAM

The Continental Sales-Building Program includes: the Farm and Livestock Record Book, the Grassland Farming Manual devoted to soil conservation and better farming methods, and the Building Plan Service with many helpful hints for repairing old buildings . . . for building new structures. Ask your jobber or write—.

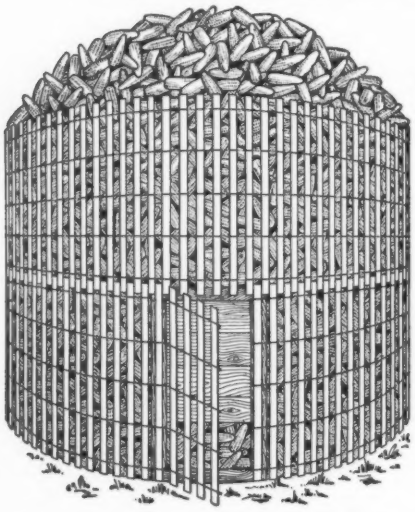
CONTINENTAL STEEL

CONTINENTAL STEEL CORPORATION

GENERAL OFFICES • KOKOMO, INDIANA

PRODUCERS OF — 15 Types of Farm Fence, Posts, Gates, Barb Wire ... 14 Styles of Steel Roofing and Siding and Fittings ... Nails, Staples, Lawn Fence, Wire Products

DENNING
PORTABLE CORN CRIB



THE FARMER'S FAVORITE FOR OVER 45 YEARS

Each section 4' high, consisting of heavy slats ½" thick x 1½" wide, spaced 2" apart, woven between 5 cables of No. 12½ galvanized wire. Painted with red mineral preservative. Long lasting. Easy to erect.

ORDER NOW for Early Fall Delivery

Denning Portable Corn Cribs and Economy Silo Cribbing insure you satisfied customers. Make extra profits by helping farmers in your community to salvage their entire corn crop, this coming fall.

Send for color illustrated folders.

MANUFACTURED BY

Illinois Wire & Mfg. Co.

JOLIET • ILLINOIS

BOOKS BY THE LATE DOUGLAS MALLOCH

(The Lumberman's Poet)

LIVE LIFE TODAY . . .

"Live life today as though today were all"—is the theme of Douglas Malloch's inspiring poems. No one can read them without a renewed zest for life and living. 192 pages. Size 8 x 5½ inches. $1.50 per copy.

COME ON HOME . . .

The author has been called "the world's greatest optimist"—"a clear visioned prophet"—and a poet whose verses brim with "the philosophy of sunshine"—"refreshing, simple, direct and human." This book contains favorites that Mr. Malloch read in his travels throughout the country. 222 pages, size 8 x 5½ inches. $1.50 per copy.

THE HEART CONTENT . . .

In these "lyrics of Life" Mr. Malloch struck a high note. They are full of the inspiration, help and humor that caused his poetry to be "Called good by the greatest of all critics, the people." This book of cheerful and happy verse includes the favorite and widely quoted poem "TODAY." 168 pages. Size 8 x 5½ inches. $1.50 per copy.

All three books, postpaid, for only $4.00

Book Department

AMERICAN LUMBERMAN

139 N. Clark St.

Chicago 2, Illinois

Farm Equipment & Supplies

Silo Capacities

The number and kind of livestock kept on the farm along with feeding practices determine the size silo needed. The capacity of round, upright, silos varies according to diameter and height. Capacities of the most common sized silos are given in the following table.

Height (Feet)	Inside Diameter					
	10 feet	12 feet	14 feet	16 feet	18 feet	20 feet
	Tons	Tons	Tons	Tons	Tons	Tons
20	22.78	32.75	44.60	58.28	73.80	91.10
24	29.50	42.45	57.80	75.48	95.53	117.95
26	33.08	47.66	64.80	84.64	107.22	132.30
28	36.78	53.00	72.10	94.10	119.25	147.10
30	40.60	58.50	79.50	103.80	131.60	162.30
32		64.12	87.20	113.80	144.35	178.00
34		69.82	95.10	124.20	157.35	194.10
36			103.20	134.70	170.70	210.60
38			111.30	145.30	184.20	227.20
40			119.60	156.20	198.10	244.30
44				178.60	226.30	279.10
48				201.80	255.65	315.40

Poultry Housing

Floor Area: Approximately 2½ chicks per square foot. A 10 '2 foot brooder house will shelter 300 chicks with no o\ '-crowding.

Sun Parlor: Mesh covered panels which can be hooked together easily, provide an inexpensive open air exercise pen. If a frame covered with netting is used for the floor, sanitation is assured. On bright days with a slight wind, these exercise pens are usable, if the side panels are covered with tough building paper. Some poultry men have constructed separated panels covered with building paper or muslin and fastened them against the wire-covered panels in chilly weather.

Facing: Housing should always face south.

A 10x12 foot brooder house is needed in conjunction with a 20x20 foot laying house. To maintain a production farm flock of 100 to 125 hens, about 300 young chicks are needed each year. After the death losses and necessary cutting are subtracted, the number of pullets available for addition to the flock will balance the losses sustained by the flock.

Construction Hints

Skids: 4" x 4" x 14'. Treated material preferred.

Sills: 2" x 8" x 10' bolted to skids.

Joists: 2" x 4" x 12'—2 feet on centers.

Floor: Double—if early brooder and broiler production is planned. Shiplap on joists, building paper and then matched flooring. Single—if late brooding is planned. Should be matched flooring.

Walls: 2x4 inch studs placed 2 feet on centers. Covered with sheathing finished with flexboard. Rigid construction needed to withstand the strain of moving.

Roof: 2x4 inch rafters placed 2 feet on centers. Shiplap should be used for sheathing if prepared roofing is used. 1x4 inch boards spaced 2 inches apart if shingles are used. One foot of overhang on all sides is recommended.

Multiple Poultry Houses

The multiple type of poultry house is popular among large scale producers because this type of a building cuts the cost of construction, maintenance and caring for the birds to the lowest level.

The principle difference in this type of unit is the fact that the building is built two, three, four or five stories high. In this way foundation and roof cost are charged off to a larger number of birds.

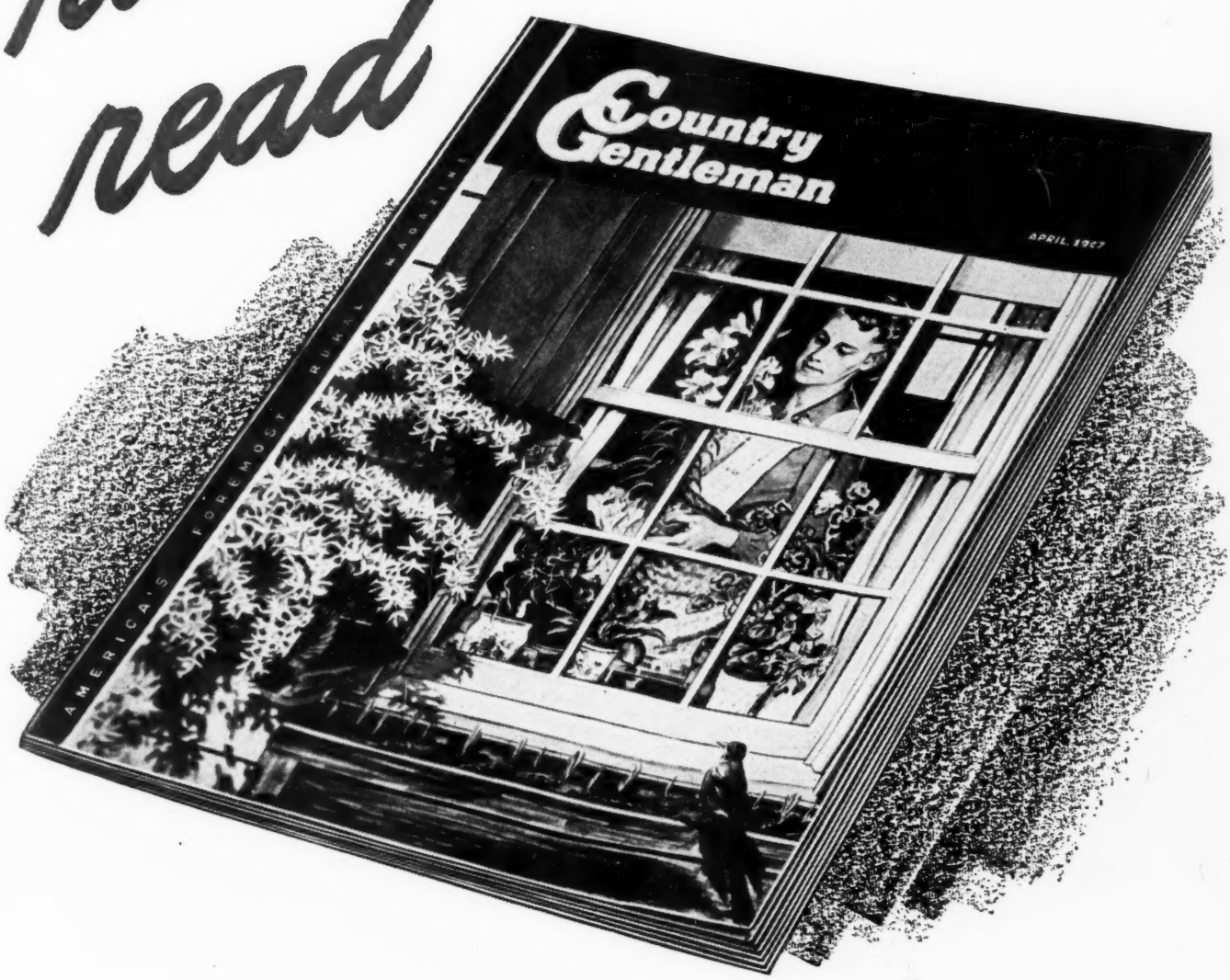
This first cost factor is important but other advantages are as follows:

1. Low cost of maintaining roof per bird in years to come.

2. Pens are cooler in summer and warmer in winter, due to the fact that less wall and roof area are exposed to outside temperatures.

3. It is more pleasant and easier to care for the

Your best rural customers read



Rural building material dealers know this. Asked what rural magazine would be most effective, from an advertising standpoint, in helping them sell their prospects

they chose Country Gentleman almost 2 to 1

Advertisers know this. They invest more advertising dollars in Country Gentleman than in any other farm magazine.

birds. All birds are under one roof, eliminating travel from one house to another, as in small units.

4. Time Saver—One man can care for two to three times as many birds as in one-story type—thus cutting expenses.

Ventilation: Ventilation in this type of unit is not difficult to handle but the flue system is different.

Ventilation Suggestions for Barns

1. One of the best indications of an improperly ventilated barn is the condensation of moisture on the walls, ceilings and floors.
2. Ample ventilation is indispensable for maintaining the animal's power of disease resistance. A cow needs to be supplied with twice the weight of pure air that she does of food and water.
3. The essential parts of an effective ventilating system are:
   (1) The inlets for fresh air—the total sum of their area should equal or exceed by 10% the area of the outlets.
   (2) The outlets for foul air—these should be so constructed that their sides are air-tight and afford complete insulation so that air within flue will not be cooled too rapidly.
   (3) The aerator on top of the barn—so constructed that the action of the wind exerts a suction on the air in the outlet flue.
4. Rate of supply of air to barns to provide pure air for classes of livestock.

	Cu. Ft. per Head Per Hour
Horses	4924
Cows	3958
Hogs	1510
Sheep	929
Hens	37

5. The following amount of out-take flues required to keep the air in the building sufficiently pure for livestock.

	Head
Horses—1 sq. ft. cross-sectional area for	5
Cattle—1 sq. ft. cross-sectional area for	5
Hogs —1 sq. ft. cross-sectional area for	18
Sheep —1 sq. ft. cross-sectional area for	24
Hens —1 sq. ft. cross-sectional area for	400

Insulation on the Farm.

Send for Farm Building Insulation—Insulating Board Institute, 111 W. Washington St., Chicago 2, Ill.

Send for Insulation on the Farm—U. S. Department of Commerce, Washington, D. C.

Send for Rock Wool on the Farm—Mineral Wool Association, New York.

The farmer of today is no different from the city dweller when it comes to home comfort. He too, wants a house that is easy to heat and one that will be cool during hot summer nights. Insulation is more important to the farmer in winter than to the city fellow, because only 14 percent of the farms in our nation have central heat. This means that the farmer must fire many stoves throughout the house to keep warm.

In summer a cool house is a blessing after riding the hot tractor in the blazing sun from dawn to dusk. With a seven day week and such long hours, rest and comfort are more important than anything else for the farmer's few leisure hours.

Remember that the farmer knows the value of insulation better than most customers as he uses so much of it in his producing and storage buildings. Because of this it is easier to sell the farmer a complete job than almost any of your other customers. This is especially true today, when less other merchandise is available and he has more money than usual to spend.

Batt, blanket, blown, board, reflective or fill types of insulation can be used in farm homes.

Farm Insulation Check Chart

House: Insulate top ceiling. Blow sidewalls of frame houses. Decorative board for inside walls and ceilings.

Pump House: Insulate sidewalls and ceilings by placing insulation in studs and rafter spaces. Wrap exposed lines with pipe insulation.

Poultry House: Insulate sidewalls and ceilings, using board insulation, never under 25/32 inch.

Machine Shed: Insulate walls and ceilings of workshop only.

Beef Cattle Barn: Normally needs no insulation.

Dairy Barn: Insulate sidewalls and ceiling even if hay is stored overhead. Vapor sealing and ventilation important.

Milk House: Insulate sidewalls and ceilings for workers' comfort and to protect plumbing. Insulate cooling tank and be sure insulation is set in hot asphalt.

Hog House: Insulate sidewalls and ceilings. Vapor seal over all insulation is essential, as paper on insulation is often not enough.

Potato and Fruit Storage: Insulate sidewalls and ceilings. Vapor seal very essential.

Selling Tips and Helps for the Salesman

Time was when the farmer, his neighbors and available rough carpenters did most of the construction on farms. The farmer bought building materials rather than "packages" and sales were made on a per piece or per thousand basis.

Two factors have brought about a gradual change: (a) the farm today is more diversified and the farmer has less time for construction work himself than formerly, and (b) the income of the farmer has grown to the point where he can contract for the complete building the same as big city neighbors.

While the salesman must always be prepared to sell the farmer materials and units, he also must be prepared to arrange the delivery of complete buildings, either as prefabricated and portable units, or contract jobs.

If his company does not have a farm library available, the farm building products salesman should start one of his own and have on file for study and reference:

The farm journals read by your customers.

Farm Construction publications of the U. S. Department of Agriculture.

Farm Construction publications of his State University.

Explanatory booklets of manufacturers, especially lumber, steel, asbestos, aluminum, copper, insulating board, insulation, cement, clay products, etc.

Literature of Farm Machinery and Equipment Manufacturers.

Farm Construction manuals of all building industry associations.

Get on the mailing list of people who issue farm bulletins regularly.

The salesman will find it greatly helpful frequently to contact and consult with:

His County Agent.
Personnel of State Agricultural College.
U. S. Department of Agriculture.
Farm Engineers and Specialists in Manufacturing Companies and Associations.
Insurance Adjusters and Agents.
Farm Real Estate Companies.
Farmer's Clubs and Organizations.
4-H Clubs.
Banks and Loan Agencies.
Rural Electrification Personnel and Government Inspectors.
Veterinarians.
Farm Women's Organizations.
Extension Service and Experimental Stations.

In order to make farm sales successful, the salesman must **get out to the farm.** He must cultivate the farmer's friendship.

One of the best ways to build a permanent business is to plot an over-the-years building and improvement program with each farm family in your territory.

Cultivate the "key" farmer in an area. One farmer in each farm neighborhood is held high in respect by other farmers. They are inclined to follow his leadership. If you can sell him a new or advanced idea his neighbors are likely to buy the same item.

The salesman should acquaint himself with every available type and source of consumer sales financing for his farm trade. In spite of the farmer's strong cash position, it often helps the sale to discuss it in terms of monthly, quarterly or crop payment schedules.

Section 13

Lawn and Garden Products

Lawn and Garden Department

Every passing year witnesses the increasing number of American families taking advantage of the pleasures and satisfactions in outdoor living.

The modern home is often planned around a patio or garden and all income groups, spurred on by war necessity and experience, are continuing the trend toward the garden home and the home garden.

The alert lumber and building products merchant is taking advantage of this trend by installing a full line of garden furniture and equipment to the greater service of the community and profit to himself.

The approach to a lawn and garden department is varied, but this section will outline a quite complete coverage of the department, providing an opportunity for the dealer who is approaching the problem for the first time to analyze his role and profit opportunity on a sub-department basis.

Sub-Departments of a Lawn & Garden department includes:

Fertilizers and Soil Conditioners
Flower Gardens
Fruit Gardens
Fences, Gates and Posts
Games and Recreation
Garden Equipment and Furniture
Grass and Lawn Seed
Greenhouses
Machinery and Tools
Outdoor Fireplaces and Equipment
Pest Eliminators
Pets and Their Housing
Shrubbery and Vines
Trees and Evergreens
The Vegetable Garden
Walks & Driveways (See Section 17).

Closely related departments include Hardware (Section 11) and Farm Equipment and Supplies (Section 12).

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

Lawn and Garden Department

Sales Items

Fertilizers and Soil Conditioners

( ) Chicken Manure
( ) Compost Compound
( ) Horticultural Peat
( ) Lime
( ) Nitrogen
( ) Peat Moss
( ) Phosphorus
( ) Plant Foods
( ) Potash
( ) Sheep Manure
( ) Soil Testers
( ) Sulphur

Flower Seeds

( ) Asters
( ) Begonias
( ) Bleeding Hearts
( ) Carnations
( ) Chrysanthemums
( ) Hollyhocks
( ) Irises
( ) Lilies
( ) Oriental Poppies
( ) Peonies
( ) Coreopsis
( ) Daisies
( ) Delphiniums
( ) Ferns
( ) Geraniums
( ) Phlox
( ) Roses
( ) Snap Dragons
( ) Sweet Peas
( ) Sweet Williams

Bulbs and Roots

( ) Crocus
( ) Hyacinth
( ) Narcissus
( ) Tulips
( ) Scillas

Fruits and Berries

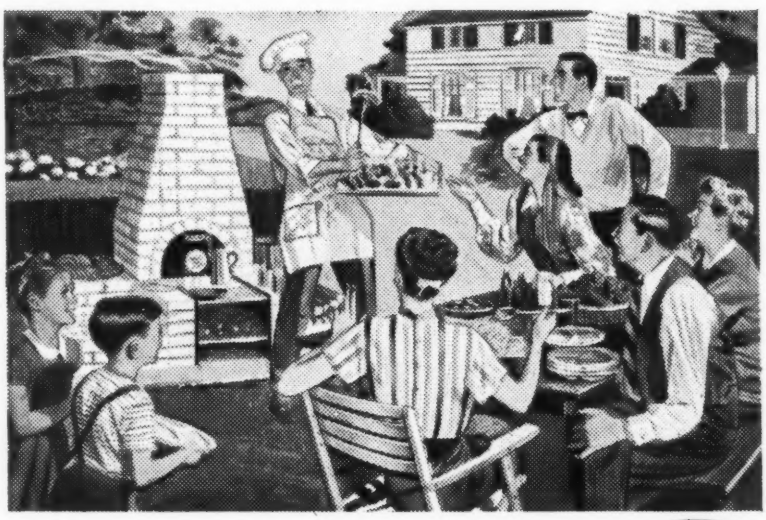
( ) Blueberries
( ) Blackberries
( ) Boysenberries
( ) Currants
( ) Gooseberries
( ) Raspberries
( ) Strawberries
( ) Apple Trees
( ) Apricot Trees
( ) Cherry Trees
( ) Crab Apple Trees
( ) Peach Trees
( ) Pear Trees
( ) Plum Trees
( ) Prune Trees
( ) Rhubarb

(Continued on Page 320)

Revolutionizes Outdoor Cooking

AND BRINGS YOU AN EVER-WIDENING WAVE OF SALES

Once in a blue moon comes a sales-chance like this—a product that literally sells itself to your customers' friends and neighbors. Yes, each sale you make creates new, sure-fire prospects for you.



On the crest of a trend

Outdoor cooking is on the rise. The Outdoor *Oven* Fireplace has exciting patented advantages that put it many strides ahead of usual outdoor cooking devices. Sales so far this year are 3 times greater than last year.

It's *not* just a grill. It's a sturdy, self-contained unit, with a convenient built-in oven. It bakes, broils, roasts, fries and barbecues with indoor ease. Heat is directed where needed, smoke is drawn off, away from cook and guests. It has been granted the *Good Housekeeping seal.*

No installing or servicing

It comes complete and assembled, in an individual carton. Customers easily install it themselves, and there's no servicing needed—so you can sell it to customers far and wide.

The Outdoor *Oven* Fireplace is widely advertised in large space, with powerful appeal to both men and women, in leading national magazines and newspapers. Sure-fire color store displays and ad mats available.

Clean-cut profits

The worth-while mark-up . . . the straight, complete sale . . . the sensational cooking results it gives . . . the "one-friend-shows-another" sales opportunities . . . the great chance for tie-in sales of accessories . . . these all add up to good profits and swift turnover. *Set your store up as headquarters for this great sales-stimulator. Write today for full specifications and liberal discount plan.*

READ THESE HIGHLIGHTS

Patented construction of heavy gauge steel—overall size: 37½" x 17¼" x 24". Scientific heat and smoke directors. Baffles to check down draft. Oven with removable door is integral part of unit. Grates of heavy grey cast iron, lower one adjustable to two positions. Uses any solid fuel: wood, coal, coke, briquettes or charcoal. Weight 120 lbs., crated and ready to ship F.O.B. Hartford, Conn.

OUTDOOR OVEN FIREPLACE

Today write: **The OUTDOOR Oven FIREPLACE Co.**
1477 Park Street
HARTFORD 6, CONN.

A timely item you can sell in quantity ...now!

MILCOR
PICK-UP CART

Your customer reaches for his dollars, when you show him how this popular lawn and garden cart lightens his work

Almost anywhere there's something to be carried, the Milcor Pick-up Cart does the hard work. That's music to your customer's ears — especially now, when lawn, garden, and general yard chores . . . and heavy bushel baskets . . . loom before him.

With the Milcor Pick-up Cart, he can usually take everything in one load (as much as several basketfuls) — and easily wheel it away. He walks fewer steps. He does no lifting. He feels no strain.

A complete program of persuasive national and local advertising tells your customer about the Milcor Pick-up Cart — and brings him to your store.

Order a sufficient stock of Milcor Pick-up Carts now, to take care of the present heavy demand. Display them prominently.

Has natural appeal for your customer:

● **The easy way to carry rakings, leaves, garden tools, rubbish, laundry, etc.!** The weight of the load rests on the wheels of the cart — not on the arms of the user. Big capacity — top opening measures 28 inches, front to back. Width, 18¾ inches.

● **Saves time and effort!** The front end of the Milcor Pick-up Cart tilts to the ground, for easy loading. The load can be dumped cleanly and quickly.

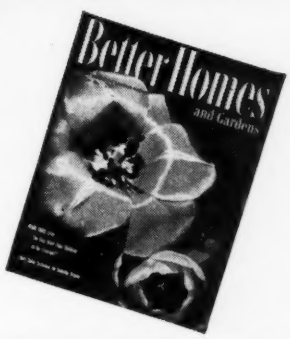
● **Holds load securely!** Two upright legs hold cart firmly, when standing. Load is evenly distributed on wheels; this prevents tipping when cart is moving. One-piece all-steel tubular handle.

● **Stands hard knocks!** The Milcor Pick-up Cart is sturdily constructed of heavy-gauge sheet steel. Attractive green-and-orange baked-enamel finish. Large wheels. Wide rubber tires, easy on the lawn.

Write for descriptive literature, advertising, and dealer helps!

MILCOR STEEL COMPANY, MILWAUKEE 4, WISCONSIN
Inland Steel Products

Baltimore 24, Md.; Buffalo 11, N. Y.; Chicago 9, Ill.; Cincinnati 25, Ohio; Cleveland 14, Ohio; Detroit 2, Mich.; Kansas City 8, Mo.; Los Angeles 23, Calif.; Rochester 9, N. Y.



9,600,000 ads
help to build your volume
—on Milcor Pick-up Carts

Big-space, 3-color ads make 9,600,000 sales calls for you—in April, May, and June issues of "Better Homes & Gardens."

G-1388

Lawn & Garden Products

(Continued from Page 317)

Fences, Gates and Posts
- ( ) Board Fences
- ( ) Broad Gothic Fences
- ( ) Cedar Posts
- ( ) Cedar Rails
- ( ) Hand Split Fences
- ( ) Lattice Fences
- ( ) Lock-weave Fences
- ( ) Fencing
  - ( ) Wood
  - ( ) Wire
- ( ) Picket
- ( ) Pergolas
- ( ) Pre-Fabricated
- ( ) Post Hole Augers
- ( ) Post Hole Diggers
- ( ) Rustic
- ( ) Round Top Stockade Fences
- ( ) Trellis

Games and Recreation
- ( ) Archery Sets
  - ( ) Arrows
  - ( ) Bows
  - ( ) Quivers
  - ( ) Targets
  - ( ) Arm Guards
- ( ) Badminton Sets
  - ( ) Rachets
  - ( ) Shuttle-cocks
- ( ) Croquet Sets
- ( ) Lawn Tennis Sets and Equipment

Garden Equipment and Furniture
- ( ) Arbors
- ( ) Benches
- ( ) Chairs
- ( ) Cots
- ( ) Flag Poles
- ( ) Incinerators
- ( ) Lawn Swings
- ( ) Lily Pools
- ( ) Pergolas
- ( ) Play Houses
- ( ) Revolving Clothes Dryers
- ( ) Seats
- ( ) Sleeping Bags
- ( ) Sun Dials
- ( ) Trellis
- ( ) Tree Seats
- ( ) Tents
  - ( ) Pup
  - ( ) Umbrella
  - ( ) Wall
- ( ) Umbrellas (Sun)
- ( ) Waste-Burners
- ( ) Watering Pots
- ( ) Window Boxes

( ) Grass and Lawn Seeds
- ( ) Alfalfa
- ( ) Kentucky Blue Grass
- ( ) Red Clover
- ( ) Red Top
- ( ) Rye
- ( ) Shady Mix
- ( ) White Clover

( ) Greenhouses and Equipment
- ( ) Cold Frames
  - ( ) Steel
  - ( ) Wood
- ( ) Hot Bed Sash
- ( ) Hail-proof Glass
- ( ) Thermometers
- ( ) Weather Instruments

Machinery and Tools
- ( ) Cultivators
  - ( ) Adjustable
  - ( ) Flexible
  - ( ) Power
- ( ) Dusters
- ( ) Fertilizer Spreaders
- ( ) Flexible Rakes
- ( ) Forks
- ( ) Grass Shears
- ( ) Grass Slicers
- ( ) Hand Mowers
- ( ) Hedge Shears
- ( ) Hoes
  - ( ) Garden
  - ( ) Weeding
  - ( ) Wheel
- ( ) Hose
  - ( ) Racks
  - ( ) Reels
  - ( ) Couplings
  - ( ) Nozzles
- ( ) Lawn Barrows
- ( ) Lawn Rollers
- ( ) Oilers
- ( ) Power Gardeners
- ( ) Power Mowers
- ( ) Pruners
  - ( ) Long Handled
  - ( ) Short Handled
- ( ) Rakes
- ( ) Railroad Picks
- ( ) Seeders
- ( ) Self-cleaning Rakes
- ( ) Spades
- ( ) Spading Forks
- ( ) Sprayers
- ( ) Spreaders
- ( ) Sprinklers
  - ( ) Fan Shaped
  - ( ) Ring Type
  - ( ) Shower Type
  - ( ) Three-arm
- ( ) Turf Edgers
- ( ) Weed Diggers
- ( ) Weed Pullers
- ( ) Wheel Barrows

( ) Outdoor Fireplaces and Equipment
- ( ) Barbecue Pits
- ( ) Camp Stoves
- ( ) Folding Seats
- ( ) Forks
- ( ) Grilles
- ( ) Steak Broilers
- ( ) Outdoor Stoves
- ( ) Ovens
- ( ) Picnic Jugs
- ( ) Picnic Kits
- ( ) Seats
- ( ) Tables

( ) Pest Eliminators
- ( ) Exterminators
- ( ) Insecticides
- ( ) Insecticide Powders
- ( ) Insect Sprays
- ( ) Insect Sprayers
- ( ) Lime-Sulphur
  - ( ) Dry
  - ( ) Liquid
- ( ) Traps
  - ( ) Ant
  - ( ) Mole
  - ( ) Rat
- ( ) Tree Paint

Pets—Housing and Equipment
- ( ) Bee Houses
- ( ) Bird Houses
- ( ) Bird Cages
- ( ) Bird Feeders
- ( ) Bird Foods
- ( ) Bird Baths
- ( ) Dog Houses
- ( ) Fish Pools
- ( ) Rabbit Houses

Shrubbery and Vines
- ( ) Berry Bushes
- ( ) Boston Ivy
- ( ) Bridal Wreath
- ( ) Clipped Cedar
- ( ) Crepe Myrtle
- ( ) Climbing Rose
- ( ) Evergreen Barberry
- ( ) English Ivy
- ( ) Flowering Almond
- ( ) Flowering Quince
- ( ) Forsythia
- ( ) Grape Vines
- ( ) Honeysuckle
- ( ) Lilacs
- ( ) Privet Hedge
- ( ) Trumpet Vine
- ( ) Virginia Creeper
- ( ) Wisteria

ENGLISH TYPE -- RAIL AND HURDLE FENCE

LARGE STOCK -- PROMPT SHIPMENTS

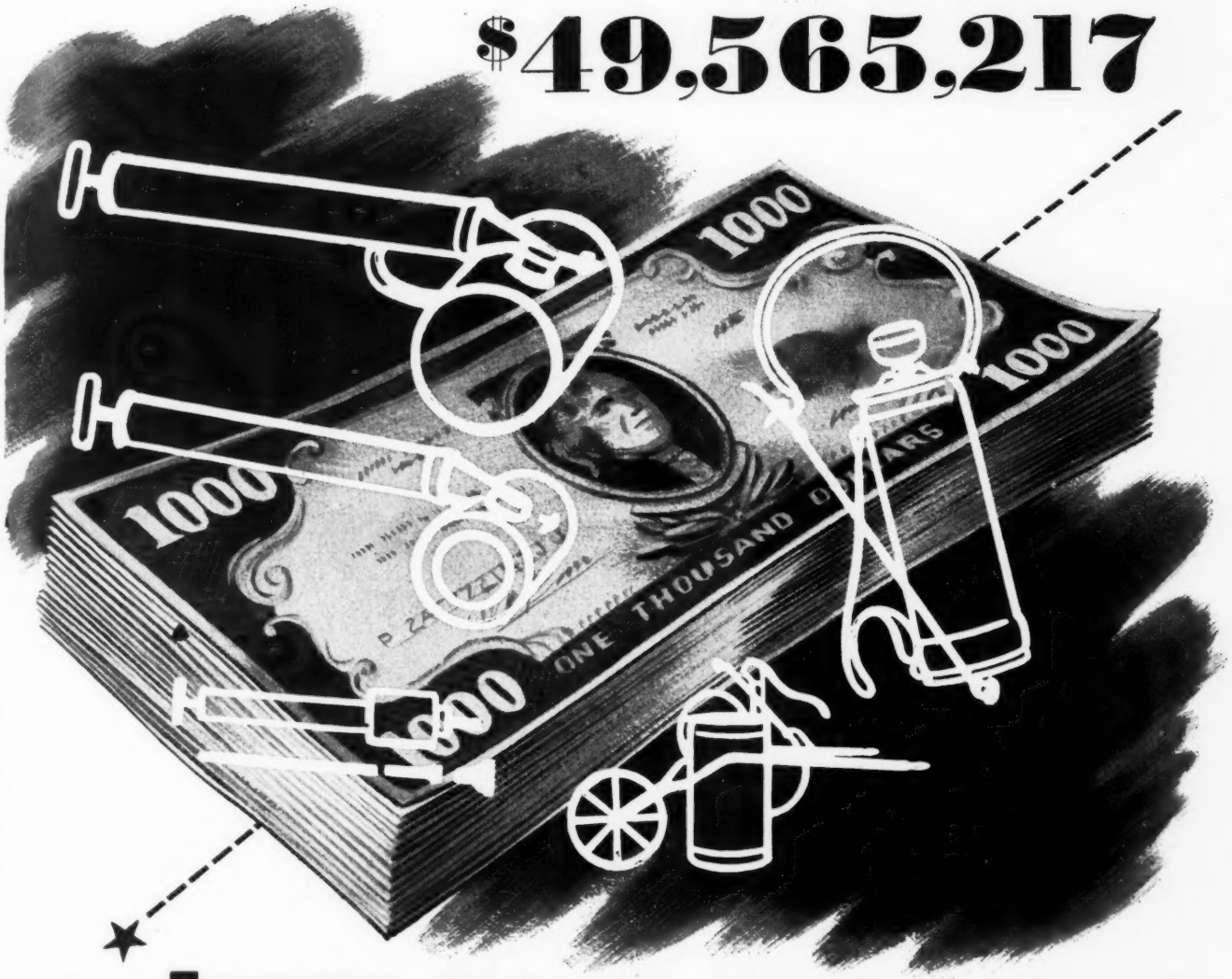
WOOD PRODUCTS COMPANY

Write for Catalogue • TOLEDO 12, OHIO

for SPRAYERS *and* DUSTERS

America's needs this year total

$49,565,217



Let LOWELL Help You Get Your Share!

With a minimum of space, no extra help and little extra effort, you can make a healthy profit by selling quality-famous Lowell Sprayers and Dusters. *Only* Lowell offers you all three of these important advantages:

1 ***Full Profits*** . . . There are no "cheap sprayers" in the Lowell line — no loss leaders that "waste" customers and hurt profits. Every Lowell Sprayer and Duster is a quality product that gives you a *full* profit.

2 ***Selective Distribution*** . . . Lowell sells only through distributors who are carefully selected for highest reputation and best business ethics. None but selected distributors can buy Lowell Sprayers or Dusters. No one can undersell.

3 ***Complete Quality Line*** . . . There's a Lowell Sprayer or Duster engineered and precision-built to fill *every* need with complete satisfaction. Yet the line is compact and standardized, designed for fast turnover and low inventory.

Write for full details today!

LOWELL
Manufacturing Co.
589 EAST ILLINOIS STREET, CHICAGO 11, ILLINOIS

Copyrighted 1946, Lowell Manufacturing Co.

WORLD'S LARGEST MANUFACTURERS OF SPRAYERS AND DUSTERS EXCLUSIVELY

Lawn & Garden Products

Trees and Evergreens

( ) Arbor Vitae
( ) Blue Spruce
( ) Dogwoods
( ) Elms
( ) Hope Crab
( ) Junipers
( ) Maples
( ) Oaks
( ) Poplars
( ) Red Bud
( ) Willows

Vegetable Garden Seeds

( ) Asparagus
( ) Beans
( ) Beets
( ) Broccoli
( ) Onions
( ) Parsley
( ) Peas
( ) Potatoes
( ) Cabbage
( ) Chard
( ) Chives
( ) Corn
( ) Endive
( ) Horse Radish
( ) Kale
( ) Kohlrabi
( ) Peppers
( ) Pole Beans
( ) Sage
( ) Spinach
( ) Soy Beans
( ) Radishes
( ) Turnips
( ) Tomatoes

Walks & Driveways (See Section 17.)

Tips for the Gardener

Fall is the time to seed and plant grass, flowers, shrubs, foliage.

Periodic planting of vegetables will give the family a seasonal supply.

Write out and plot the garden plan—the more preliminary planning the less work and the better the results.

If garden plot is flat, run the rows the long way—if steep, crosswise.

Driveway gates should be double because of weight.

Tips on Lawns

WHAT TO DO BEFORE THAWS

Liming—If a soil test shows that soil needs lime, late winter is a good time to put it on. About the most that should be applied at one time is 50 to 75 pounds of raw ground agricultural limestone per 1,000 square feet. If you use the hydrated form, reduce the rate to 35 to 50 pounds. If the lawn has not had lime in recent years it may be a good idea to make a trial application on part of it and see if that section is more thrifty through the summer. If so, the balance should be limed for the following fall or winter.

Grub Control—Lawns in areas of potential Jap beetle invasions should be treated with one of the newer materials available to eliminate grubs.

Seeding—It is well to do necessary seeding even though the ground is frozen and lots of cold weather is expected. During periods of alternate freezing and thawing the ground often becomes checked and cracked, making what is called a honey-combed surface. This is ideal to receive the seed, as weathering tends to work it into the soil where it is ready for germination when the ground warms. Feeding and seeding on top of a light snow is good practice.

The amount of seed required varies from three to five pounds per 1,000 square feet, depending upon thickness of turf and the amount of bare places.

AFTER THAW

Removal of the fall and winter accumulation of leaves and other debris is one of the first jobs after the ground thaws. At this time patches of dead crabgrass should be raked out. If general feeding and seeding have not been done before, they should be next in sequence.

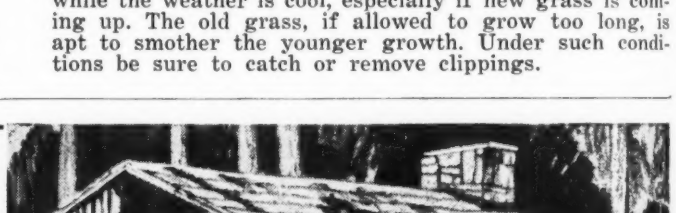
When all of the frost is out of the ground, the surface fairly well dried and seeding completed, rolling is in order. Only this one rolling a year is advised. A water ballast roller only partly filled avoids packing or puddling the soil. A firming of the surface is all that is desired.

Sooner or later the lawn mower will need to be wheeled out. It is advisable to start cutting as soon as the grass grows to cutting height, in fact, it's a good idea not to let it go too long. Those early mowings may be fairly short while the weather is cool, especially if new grass is coming up. The old grass, if allowed to grow too long, is apt to smother the younger growth. Under such conditions be sure to catch or remove clippings.

Sales Distributorships Now Open
FOR LUMBERMEN
On These Scarce Fast Selling Items

As a national manufacturer we offer an exceptional sales profit opportunity to responsible **LUMBERMEN** with the handling of the following items—

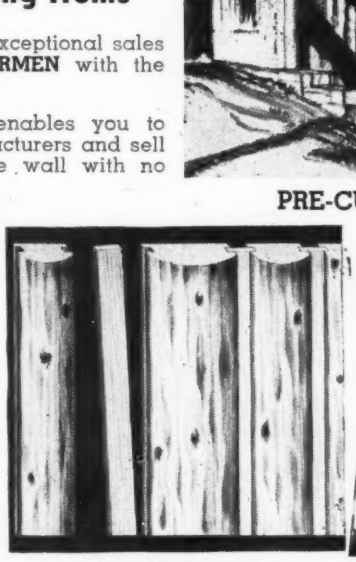
PRE-CUT STRUCTURAL CABIN LOGS—enables you to compete with prefabricated house manufacturers and sell direct to consumers. Makes a complete wall with no other interior wall finish or studding necessary. Permits easy erection of summer or year 'round cabin homes.



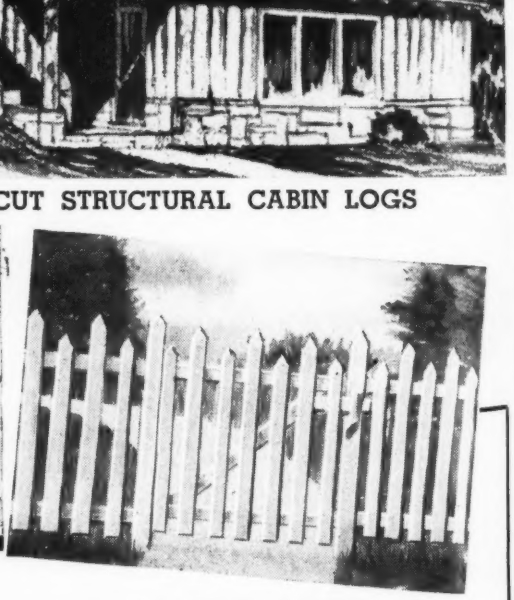
PRE-CUT STRUCTURAL CABIN LOGS

NEW WHITE FLAT PICKET SECTIONAL FENCING—The newest and finest in a white picket fence. Uses only about half of the width required in old time conventional erection. Comes unfinished ready for painting.

4-STAR "PREE-FABB" NEW WALL SECTIONS—Both sides planed and beveled. Makes complete and beautiful exterior and interior wall—no other interior wall finish needed.



4-STAR "PREE-FABB"
NEW WALL SECTIONS



NEW WHITE FLAT PICKET
SECTIONAL FENCING

CEDAR POSTS FOR SALE
We Carry an Inventory of Over One Million Cedar Posts. Write for Prices.

WRITE TODAY! for full details of selling plan and quantity prices. Limited number of dealerships available. Big season now!

Manufacturers of

FENCE COMPANY OF AMERICA
PREE-FABB PRODUCTS
608 South Dearborn Street, Dept. 18, Chicago 5, Ill.

Section 14

Electrical Supplies & Fixtures

CONTENTS OF THIS SECTION

1. Merchandising Trends
2. Post-war Shortages
3. "One stop" Merchandising
4. Easier Home Financing
5. Organizing the Department
6. Six Divisions, which deserve consideration
7. Starting the Department
8. Division No. 1—Counter Items—including display.
9. Accessories—(to supplement Div. No. 1) including display
10. Division No. 2—Contractor Supplies—including display
11. Division No. 3—Lighting Fixtures—including display
12. Division No. 4—Household Units—(refer to Sec. 15)
13. Division No. 5—Appliances—(refer to Sec. 15)
14. Division No. 6—Power Tools—(refer to Sec. 21)
15. Consumer Uses
16. Tips for Salesmen
17. Technical Data for Salesmen
18. How to increase the Dollar Sales Volume

For Related Sections See Master Index

1. **Merchandising Trends:**—In ever increasing volume, many aggressive retail lumber dealers and building products merchants have added, as part of their complete service to the prospective or present home owning customer (and their associated co-operative contractors), sample displays and adequate minimum stocks of electrical supplies and fixtures.

This trend is growing so rapidly that recent estimates indicate that over 25 percent of the wiring supplies and fixtures now being installed in new low cost homes originate with the retail dealer.

There are several reasons why this merchandising development is both logical and profitable, among these are—

2. **Post-war Shortages:**—of nearly all conventional items which the dealer was accustomed to sell gave impetus to product diversification and the addition of those construction items which form an integral part of any new structure or modernization project; and, as one of these, electrical supplies and fixtures are certainly most appropriate.

3. **"One stop merchandising":**—This desirable customer reaction is rapidly expanding in those locations where retail dealers have not only realized the manifold problems which confront the prospective home owner (when he wants to build) but who have, in addition, taken the necessary action to provide a logical solution to his difficulties.

To be able to extend a complete service, which makes possible the "one stop" idea, the dealer must be organized to furnish those essential items or parts of any home building project which will relieve the customer of being obliged to shop elsewhere.

In the Electrical Supplies and Fixture department, it is not intended that the dealer should invest in complete stocks or inventories; instead, he need only carry the quick moving wiring essentials and their related items—in limited quantities; but arrangements to serve the customer should be so well established that, when and as the construction of the home has reached a certain point, the needed supplies or fixtures, etc., can be delivered on schedule.

To render this "one stop" service efficiently, the dealer, in addition to carrying emergency supplies, should be equipped with catalogs, pricing schedules, display samples of mounted wall and ceiling fixtures, and all of those related appliances which will meet the customer's requirements (the proven methods and stock minimums will be described later in this article).

4. **Easier Home financing (refer to Sec. 24)**—One of the primary reasons for "one stop" buying by the customer is the simplification of his financial arrangements.

Because masonry, lumber, roofing, plaster, and millwork comprise the major portions of his home building expense, it is only natural that the lumber dealer should extend this additional service and enable the customer to finance these other essentials as part of the mortgage transaction.

By doing this, the customer can buy more and of better quality because the payments are budgeted over a period of years instead of months.

5. **Organizing the department:**—Because of the extensive use of electrical supplies of all kinds, to plan as to how much and to what extent the dealer can function presents a problem.

This can best be solved by dividing the several services and materials and then deciding the policy to be followed for each division.

In the broad aspects, the dealer should examine his facilities—including space for stock; for display (either counter or window) or both; his present location with regard to customer accessability; and also the possibility of obtaining a "shoppers" location where the various departments, such as paint, wallpaper (Sec. 5), Hardware (Sec. 11), Kitchen and Laundry Equipment (Sec. 15), and Millwork items (Sec. 3), etc., can be combined to form a profitable merchandising store.

The element of local competition must also enter into his calculations.

Brand names of merchandise of which the trading franchise is already allocated may prevent the dealer from handling certain items unless he develops reciprocal trade relations with the existing franchise.

However, in the majority of items, little, if any, difficulty will be encountered in the straight electric wiring field where few, if any, enjoy an exclusive arrangement.

Much of the development of the department will depend on these physical factors and the dealer's decision as to display space availability.

6. Six divisions—which deserve consideration, if adequate space can be found, are:—

1. Counter items—for emergency use.
2. Contractor supplies—for whole house jobs.
3. Lighting fixtures—wall, ceiling, portable (both conventional and fluorescent).
4. Household units, such as grills, toasters, mixers, etc.
5. Appliances, such as washers, dish-washers, vacuum cleaners, refrigerators, deep freeze units, etc. (Refer to Sec. 15.)
6. Power tools, such as saws, drills, sanders, etc., for small shop or home craftsman's use.

7. Starting the department:—The simplest approach (particularly until available sources and trading arrangements have been perfected) will be Division No. 1 or Counter Items.

Following is a partial list of what the customer would expect to find in this division (to aid the dealer, minimum stock quantities have been indicated with each unit).

In determining these minimum stock requirements, consideration was given to three primary sources of business, which are

1. The shopping home owner who sees something he needs for his home and intends to install it himself.
2. The modernization or repair job; here, either owner or contractor may purchase limited quantities.
3. New homes under construction—where certain items have either "run short"—or where additional material is required because of change in lay-out.

Note:—In determining wiring stocks, much depends on the dealer's geographic location; i.e., in some sections, open "black" wiring secured with porcelain "knobs and tubes," loom, etc., is still standard and will meet local code and Underwriter's regulations.

In other areas, one "black" and one "white" covered wire must be used. This is known as "polarized" wiring and extends to fixture as well as house wiring in that the "white" side must be the "hot" side throughout.

In other areas, "knob and tube" wiring is no longer acceptable; instead armored flexible cable, known to the "trade" as "BX" cable, must be used to conform to code.

In this connection, all outlet boxes must be equipped with "BX" fasteners consisting of ferrules, connectors and washer type nuts, and these should be provided for when setting up the "counter" stocks.

In those areas where "BX" cable is the only acceptable interior wiring material, the dealer should concentrate on this item and the boxes and fittings to fit.

Following is a list of "counter" or "under counter" items, which will meet practically all light construction requirements.

If these materials are made available to the customer (either owner or contractor), they will take care of any immediate needs to "tide" over the delivery problem until additional supplies can be obtained.

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

List of Counter Electric Supplies

8. Division No. I.

Sales Items Description	Purpose or function	Size	Suggested inventory
Wiring accessories:			
( ) Outlet boxes	Ceiling or wall outlets	3"	25
( ) Outlet boxes	Ceiling or wall outlets	4"	25
( ) "Gem" boxes	Switch or service wall outlets	2"x3"	50
( ) Box hangers	For ceilings or walls to secure between framing members	16"	50
( ) Wire—insulated	Black for interior wiring	14 ga.	2000 L.F.
( ) Wire—insulated	White for interior wiring	14"	2000 L.F.
( ) Wire—insulated	Black for exterior wiring	14"	1000 L.F.
( ) Wire—12 gauge	For Electric range & power	12"	300 L.F.
( ) BX cable—2-wire	House wiring		
( ) BX cable—3-wire	House wiring	14"	500 L.F.
( ) Ground wire	Usually—No. 6 or	8"	100 L.F.
( ) Service wire	(consult Power Co.)	—	200 L.F.
( ) *"Knobs"	Int. Wiring	Std.	500
( ) *"Tubes"	Int. Wiring	Std.	500
( ) *"Loom"	Int. Wiring	Std.	200 L.F.
( ) BX-⅜" set screw connectors	Int. Wiring	⅜	1000
( ) Porcelain Outlets plain	Int. Wiring	3"	50
( ) Porcelain Outlets pull chain	Int. Wiring	3"	50
( ) Sockets—plain	Int. Wiring	Std.	50
( ) Sockets—pull chain	Int. Wiring	Std.	50
( ) Sockets—switch	Int. Wiring	Std.	50
( ) Single pole tumbler switches		Std.	25
( ) Three-way switches		Std.	15
( ) Four-way switches		Std.	6
( ) Single gang toggle-plates		Std.	50
( ) Double gang toggle-plates		Std.	25
( ) Duplex flush receptacles		Std.	100
( ) Single gang duplex-plates		Std.	75
( ) Double gang duplex-plates		Std.	25
( ) Plain box covers		3"	20
( ) Outlet box covers		3"	20
( ) Plain box covers		4"	20
( ) Outlet box covers		4"	20
( ) Exterior outlet boxes		3"	15
( ) Exterior "Pony" brackets		Std.	20
( ) Exterior "Pony" insulators		Std.	20
( ) Exterior "Goose-neck" fixtures		Std.	12
( ) Entrance switch boxes		40 Amp.	6
( ) Entrance switch & fuse blocks		40 Amp.	12
( ) Fuses—			
( ) 30 Amp.		Std.	100
( ) 15 Amp.		Std.	100
( ) 10 Amp.		Std.	100
( ) Auto fuses (assorted)		Std.	50

*Omit these if located in "BX" territories.

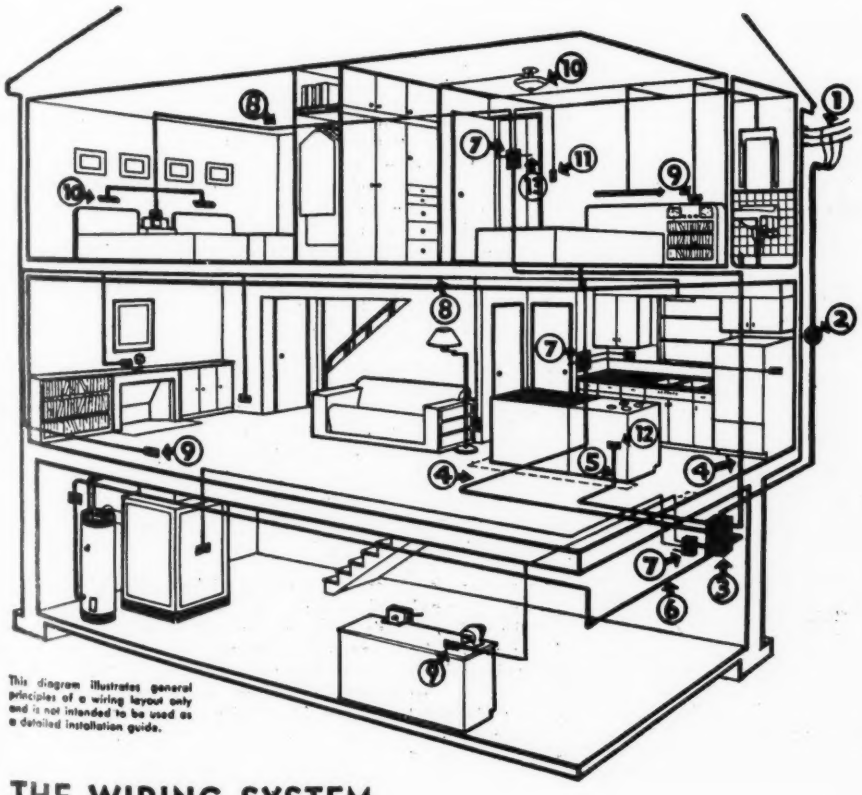
Electrical Supplies & Fixtures

( ) ½" conduit	Ext. service	Std.	60	L.F.
( ) ½" service Els	Ext. service	Std.	10	
( ) ½" Condulets	Ext. service	Std.	10	
( ) ¾" conduit	Ext. service	Std.	150	L.F.
( ) ¾" service Els	Ext. service	Std.	20	
( ) ¾" Condulets	Ext. service	Std.	20	
( ) Closet switches	Interior wiring	Std.	12	
( ) "Tell tale" lights	Interior for basements, etc.	Std.	12	
( ) Illuminated house numbers	Exterior wiring	Std.	100	pcs.
( ) BX staples	Interior wiring	⅜"	5000	
( ) Rubber tape	Assembly	½"	50	rolls
( ) Friction tape	Assembly	½"	100	rolls
( ) Wire solder	Assembly	Std.	50	pkg.
( ) Solder paste	Assembly	2 oz.	25	
( ) Elec. Soldering iron	Assembly	200 Watt	5	
( ) Regular Soldering iron	Assembly	¾ lb.	5	
( ) Alcohol torch	Assembly	1 pint	4	
( ) Gasoline torch	Assembly	1 quart	4	
( ) Solderless connectors	Assembly	Std.	500	
( ) Extension cords	Appliances	Std.	1000	L.F.
( ) Bell wire	For bells, annunciators	18 ga.	2000	L.F.
( ) Push buttons	For bells, annunciators	Std.	24	
( ) Buzzers	For bells, annunciators	2"	12	
( ) Bells	For bells, annunciators	2"	12	
( ) Chimes	For bells, annunciators	3 tone	4	
( ) Lamp & appliance cord	Duplex silk covered for replacement to lamps		500	L.F.
Replacement Elements—				
( ) for toasters		Std.	6	
( ) for irons		Std.	6	
( ) for grills		Std.	6	
( ) Testing units	To check circuits			
( ) Cutting pliers	(Refer to Hard-			
( ) Screw drivers	ware Sec. XI)	Std.	4	

9. **Accessories:**—Whatever standard brand is available.

( ) Toasters		3
( ) Mixers		3
( ) Coffee makers		3
( ) Reflectors		3
( ) Water heaters		3
( ) Fans		3
( ) Grills		3
( ) Irons		5
( ) Radiators		2
( ) Pump switches		3
Electric Bulbs—		
( ) Standard base	15-40-60-75-100 watts	50 ea.
( ) Mogul base	100-200-300 watts	12 ea.
( ) 3-way Std.	50-100-150 watts	15 ea.
( ) 3-way Mogul	100-200-300 watts	15 ea.

SUPPLY SERVICE: WIRING



This diagram illustrates general principles of a wiring layout only and is not intended to be used as a detailed installation guide.

THE WIRING SYSTEM

MAJOR ELEMENTS OF A RESIDENTIAL WIRING SYSTEM

1. SERVICE — Main Highway
2. METER — Toll Station
3. MAIN DISTRIBUTION CABINET
4. SUB FEEDERS — Main Roads
5. RANGE CIRCUIT — Main Road
6. WATER HEATER CIRCUIT — Main Road
7. BRANCH CABINETS
8. BRANCH CIRCUITS — Side Roads
9. CONVENIENCE OUTLET
10. LIGHT OUTLET
11. WALL SWITCH
12. SPECIAL OUTLET
13. OTHER CIRCUITS NOT ILLUSTRATED

Electrical Supplies & Fixtures

( ) Fluorescent tubes	"Daylight" and white in standard lengths up to	40 watts	12	ea.
( ) Starters for each type			24	ea.
( ) Sockets for each type			24	ea.
( ) Ballast units for each type			12	ea.
( ) Infra red-heat bulbs		Std.	12	
( ) Insect dispersing bulbs		Std.	20	
( ) Xmas tree bulbs	(in sets and units)	110-V	200	
( ) Flashlight bulbs	1-2-3 cell	Std.	100	
( ) Headlight bulbs	(Std. assortments)		6	
( ) Dry batteries (regular)	For bells	1½-V	24	
( ) Dry batteries	For flashlight	Std.	100	
( ) Flashlights complete	1-3-3 cell lights	Std.	12	ea.
( ) 3-wire cable	For thermostats	Std.	500	L.F.
( ) Transformers	For thermostats	25-V.	12	
( ) Transformers	For bells or chimes	Std.	12	

Items Asked For But Not Normally Stocked

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10. Division No. 2—Contractor supplies (for whole house jobs):—Because the dealer with counter trade can obtain and sell a wide variety of wiring supplies, his stocks can be more complete than the average electrical contractor.

Likewise, if the contractor feels that the dealer not only can give him service on his material requirements; but that, in addition, the dealer will recommend his services, the contractor will not feel reluctant to give his business to the retail dealer.

There is another advantage to the contractor which is that, if the dealer carries an adequate stock inventory, he does not have to invest his capital in supplies.

The dealer's advantage lies in the fact that through his contractor relations he can service the entire sale; earn a legitimate profit on the increased dollar volume; and influence prompt service to his customers.

The only addition to the described Counter stock will be the increase in inventory quantities of those items most in demand.

It is advisable to perfect co-operative understandings with several electrical contractors and, after this has been accomplished, consult with them regarding the kinds, sizes, and brands of those supplies which are most commonly used in that locality.

11. Division No. 3—Lighting Fixtures:—This division opens a new opportunity for additional volume and profit.

Because they can be placed so attractively, they are ideal for display purposes, either on walls, ceilings, display windows, merchandising panels, or for illuminating other items the dealer has for sale.

Lighting Fixture Manufacturers have developed excellent catalogs in color with emphasis on adequate lighting arrangements for the home.

These books and folders should be used to enable the prospective home owner to select a fitting ensemble—however—

Sample fixtures of several types for wall and ceiling use should be mounted for actual display.

These should be of excellent quality, simple in design, and in accord with the period; i.e., either colonial, Georgian, Tudor, or modernistic, etc.

Several types of finish should be featured—"old gold," "silver," "antique bronze," "bright brass," etc. (This provides an opportunity to "tie in" with the finish hardware—refer to Sec. 11).

Normally, no stock inventory is required on fixtures. They should be subject to special order in the design and finish which the customer selects.

Usually, there is ample time during the construction period to obtain fixtures for any new job before it has advanced to the stage where fixtures can be hung.

Fluorescent lighting fixtures should also have a definite place in the display. The latest developments have made these units most attractive for any part of the home.

Advantages—A well planned fixture display lay-out will not occupy much space; will enhance the appearance of the place of business; will represent a modest out-lay; enable the customer to buy with confidence and—can well become a source of "extra" business by reason of the fact that the electrical contractor (many of whom do not have any display room) will bring his or their clients to the dealer's display to make their selections. In doing this, the fixture customer exposes himself to the other sales appeals, which the dealer may offer.

If display facilities permit, another lucrative field for the dealer consists of portable lamps, sun lamps, desk lamps, etc. This should not be overlooked.

12. Division No. 4—Household units—This again, for the most part, depends on location, display facilities and market potential. It consists of toasters, coffee makers, grills, mixers, electric clocks, etc. Only limited inventories are required. Many can be sold subject to order (for further reference see Sec. 15).

13. *Division No. 5—Appliances (refer to Sec. 15)—Ample floor space and assessable location are two definite requisites for these items. However, they can and are being successfully merchandised by numerous aggressive retail dealers who have acquired appropriate display facilities.

The appliances consist broadly of washing machines, dish washers, refrigerators, deep freeze units, vacuum cleaners, water heaters, radiant heaters, electric stoves, etc.

(Some dealers have found that, under certain conditions on a "whole house" "one stop" sale, many of the above [if connected in a permanent manner] may be included in the mortgage financing—enabling minimum payments over a long period and giving both the dealer and customer the benefits of long range budget payments.)

Only floor samples are required because delivery is not an immediate requirement.

14. Division No. 6—Power tools (refer to Sec. 24—"Machinery and Equipment" and Sec. 11—"Hardware and Related Items.")

This division offers many opportunities for development. Briefly, it consists of an assortment of bench saws, shapers, planers, sanders, band saws, jig saws, and hand portable saws. In addition to saws, there are electric drills, bench, platforms and portable hand drills.

All of these definitely tie up with spare parts, such as saw blades, drill bits, jig saw blades for various uses, shaper and planer tools, sanding belts, band saw blades, etc., grinding wheels, etc.; for greater detail refer to Sections 11 and 24.

To encourage both consumer initial investment and continuous use, the sale of home Craftsmen's books and plans can be helpful. Likewise, for home projects, "shorts" from the Millwork or Lumber department (refer to Sections 1 and 3) will assist in sustaining customer interest.

Service facilities (thru outside co-operative sources) such as saw filing, tool grinding, drill sharpening, etc., will be in demand once the available services are made known to the customers.

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*For further description and detailed information refer to Sec. 15—"Bathroom, Kitchen, and Laundry."

Electrical Supplies & Fixtures

Inasmuch as all craft work in wood requires finish, glue, clamps, hardware, etc., the dealer can cash in on these related items in Section 5—"Paints"—Section 11—"Hardware", etc.

Then, too, there are electric soldering irons, wire solder, tape, solder paste, pliers, screw drivers, and other tools, which are essentials (refer to Sec. 11).

15. **Consumer Uses**—Home owners, home builders, contractors, manual training instructors, manual training students, all of these will contribute to more and profitable sales of what the dealer has to offer; particularly, if the available items or services are brought to the customer's attention—either by display (which is preferable) or, if space limitations prevent, by appropriate pamphlets describing kinds, sizes, and prices.

16. **Tips for salesmen**—

1. Study the business to know what items are available in the dealer's stocks or through affiliated sources.
2. Arrange display to show some items out of each category.
3. Appropriately mount descriptive literature to supplement display and verbal explanation, and keep an up-to-date supply of extra copies conveniently available for distribution.
   (This is particularly helpful when discussing a certain complicated item because it usually contains the technical data.)
4. Become familiar with the related items—even though they are located in other departments and make each sale bigger than the customer originally intended.
5. If the dealer's stock does not include what the customer wants but where the dealer's suppliers can furnish the desired item, "follow through" by
   (a) Writing the order carefully.
   (b) Obtain name and telephone number of customer.
   (c) Retain a copy for personal "tickler;" "follow up" to remind the office that the customer wants action.
   (d) Telephone the customer as quickly as the unit itself, or information regarding its delivery is received.

17. **Technical Data for salesmen**—Note: Space limitations prevent an elaborate technical presentation; and, to be of the most assistance to salesmen in serving their customers, only those highly essential definitions, explanations, and instructions have been included in this outline of salesman's duties.

Wiring recommendations—modern homes—Each room in a home requires study to determine the most appropriate locations for switches, lighting outlets, and convenience outlets.

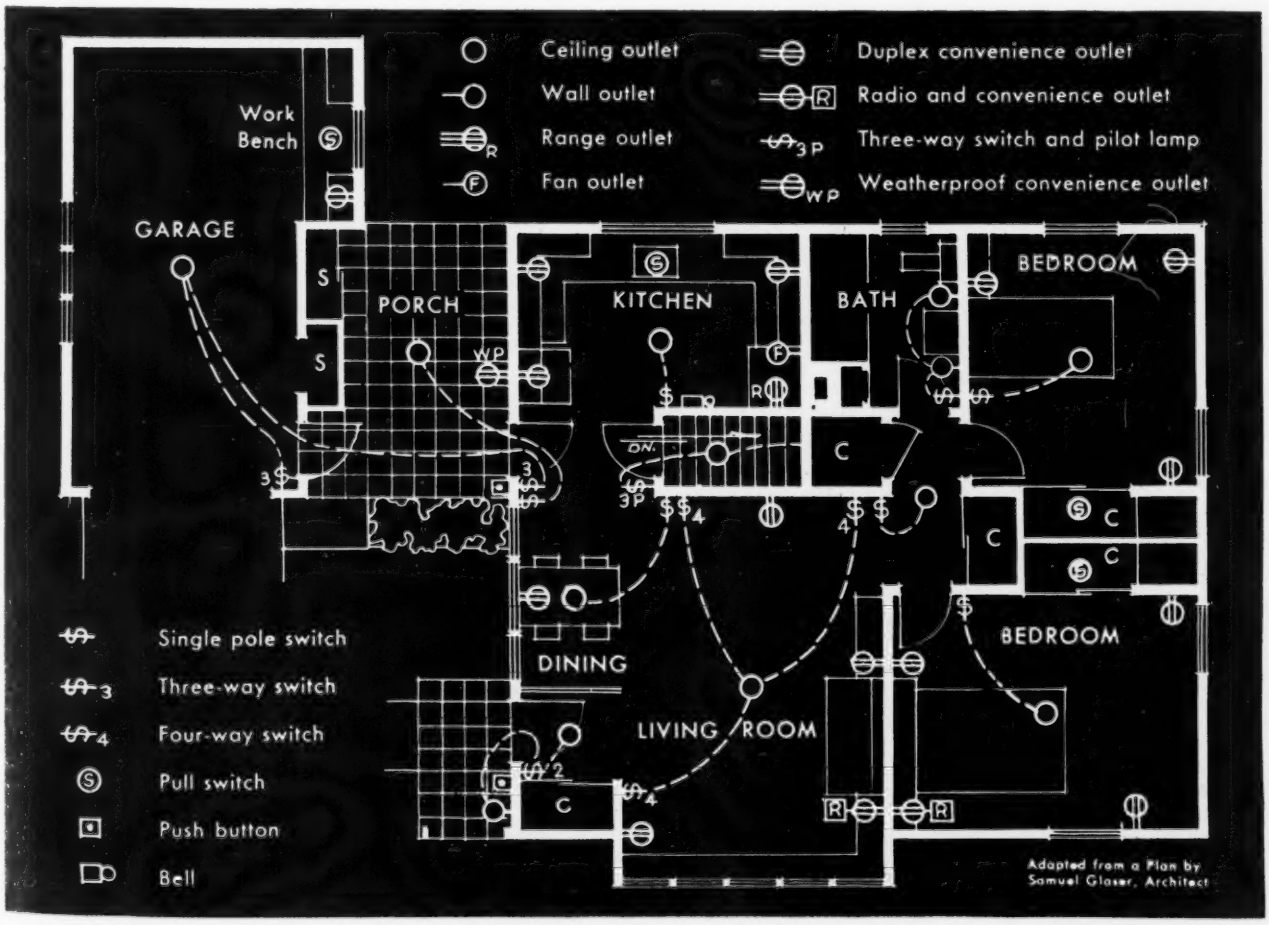
Because this spacing arrangement is not a part of the salesman's duties, it will not be treated in detail. However, there are several generally accepted practices with which the salesman should become familiar. These are—

1. Location of switches—on lock side of door—approx. 48" from floor line.
2. Location of convenience outlets—near the ends of wall spaces and approx. 18" from floor.
3. Special purpose outlets for kitchens, etc., approx. 43" from floor.
   (Others to suit the particular unit.)

In the chart on the following page, the average number of outlets has been indicated. However, there are several points which require explanation.

KNOW HOW TO READ YOUR PLAN

You should learn to recognize the standard symbols for a ceiling outlet, wall outlet, convenience outlet, wall switch, range outlet and a few others commonly used. A careful study of the plan below will acquaint you with some of the more important symbols. You should study them to make sure that your requirements for electrical use are fully provided for.



Spacing and determining the number of convenience outlets—for unbroken wall spaces, one outlet should be placed so that no point along the floor line is more than six feet from an outlet.

In walls broken by doors, each wall space of three feet or more should have an outlet.

Halls—one outlet each 15 lineal feet (switch controlled).

Stairs—one outlet on each floor, (multiple switch controlled).

Recreation room—One ceiling outlet per 150 sq. feet area.

Basement—One ceiling outlet per 150 sq. feet area and one for each enclosed space.

Porches—One ceiling outlet per 150 sq. feet (sw.).

Terraces and patios—One wall outlet per 15 feet of house wall.

Kitchens—One outlet per four lin. feet of work surface or counter area.

Note—Nearly all plans or sketches will show outlet locations and should be observed as they are the result of study by the Architect or Draftsman.

How to read plans for electric outlets—symbols, which indicate the type or function of each outlet have been developed by those who, over a period of years, have decided on a common easily understandable symbol, which serves several purposes—as an aid in estimating the job both as to material and labor required.

As the installation guide for the electrician when the work is being done, the University of Illinois Small Homes council has developed an admirable chart showing floor plan, symbols and their interpretation, which they have adopted from a plan drawn by Samuel Glaser, architect, and incorporated in their circular (G-4.0) copyright, 1945. Because of its unusual clarity, it has been incorporated in this description of "How to read plans."

18. How to increase the Dollar Sales Volume—

1. Develop adequate sources of supply for the items required in each division.
2. Tie up with nationally prominent Brand Names and profit by their sales promotion.
3. Carefully plan display lay-out to exhibit a choice example of each displayable unit.
4. Equip the division with up-to-date descriptive catalogs and color charts or pictures of installation ensembles to supplement the display.
5. Keep the price books or charts up-to-date to enable quick price reference and part numbers in writing orders.
6. Engage an electrical engineering student or a young electrician who likes the business and who has a sales personality that will enable him to both explain and sell.
7. Analyze the customer's over-all needs and select those items which can be incorporated in the mortgage payments as first choice.
8. Establish co-operative trade relations with one or more dependable electricians who will install the items which are part of the current stock and who will, because the dealer has created the sale, be agreeable to having the dealer realize his legitimate overhead and profit on all materials sold.
9. When electrical materials or stationary appliances are incorporated in the mortgage, extend credit to the electrician for such items and charge them to the job.
10. Make the counter displays attractive. Have them well illuminated with easy to read price tags and locate them near the Hardware counter items so that a customer for either has the opportunity of buying more.
11. Effect service arrangements for the replacement of burned out heating elements in irons, toasters, grills, etc., and the installation of new cords and connecting plugs on a unit price basis.
    This will encourage "one time" customers to become "repeat" customers and expose them to the other items that are for sale.
12. Obtain "stuffers" describing special items and include these when wrapping packages (these can usually be obtained gratis from the Manufacturer).
13. Mailing lists—these can be developed by recording each customer's name and address and telephone number and sending periodical mailings—listing seasonal items, such as fans, heaters, Xmas tree bulbs, appropriate "gifts" for anniversaries, holidays, etc.
14. Any check lists of the customer's present or future requirements should be made in duplicate so that a "tickler" or reminder copy is on file in the department.

Number of Outlets suggested for various rooms

Location	Single pole sw.	Three way sw.	Light outlets Wall	Light outlets Clg.	Convenience outlets No.	Convenience outlets Ht.
Living room, Den, Library	1	..	*Opt.	1	4	18"
Dining room	1	..	*Opt.	1	4	18"
Kitchen	1	..	..	1	..	..
Kitchen over sink, range, etc.	..	..	2	..	4	43"
Kitchen range, clock, dishwasher	..	..	..	..	3	Opt.
Laundry	1	..	..	2	1	Opt.
Laundry, washer	..	..	..	..	1	Opt.
Laundry, ironer	..	..	..	..	1	Opt.
Bed rooms	1	..	..	1	4	18"
Bath rooms	1	..	2	1	1	..
Recreation rooms	..	2	..	1	4	Opt.
Reception hall	1	2	..	1	2	18"
Halls	1	1	..	1	Opt.	Opt.
Stairs	..	2	..	2	..	..
Closets	Opt.	..	..	1	..	..
Entrances	..	2	Opt.	..	1	18"
Attics	1	..	..	1	1	18"
Garage	1	2	..	2	1	43"
Basement	1	1	..	2	3	Opt.
Covered porch	1	..	..	1	1	Opt.
Terraces and patios	1	..	..	..	2	Opt.

*Note—Opt. is the abbreviation for the word "Optional."

Section 15

Bathroom, Kitchen and Laundry

Bathroom—kitchen and laundry equipment—design and lay-out have become increasingly an intimate part of the modern home. Once location is decided and the units are installed with the essential plumbing—wiring—and ventilating connections, they become permanent to a degree which makes later changes both annoying and expensive, hence the need for careful pre-planning.

The retail lumber dealer or building products merchant is in a unique position to offer this service and to satisfy his customer's needs for these highly important units for several basic reasons—among which are—

The plans of the house are in his possession in order to enable him to estimate sash, trim, millwork, etc., and as a result—he can easily become familiar with:

(a) The overall extent and needs of the home.

(b) The space available for these units.

These two points give him the advantage of being able to guide his customer to make the proper selections which will be in keeping with the overall objective both from the ultimate cost and also from a resale standpoint.

Alert, aggressive building products merchants are becoming increasingly aware of the merchandising opportunities which have arisen in these integrally associated units which are so definitely a part of the complete home and have as a result taken the required action to be able to adequately serve their patrons.

"One stop" merchandising—The many problems which confront the prospective new home builder—or the owners who desire to modernize their present homes, have and will constantly increase in that they make extensive "shopping" to find units that will co-relate—or "fit" together in an appropriate ensemble increasingly difficult. Enterprising dealers have organized their products and services to make it both simple and highly convenient for their customers to make a "one stop" purchase of the entire house and thus free themselves of the many annoying details which have been so discouraging to many prospective home owners.

Because of the many meritorious varieties and styles of kitchen, bathroom and laundry products, which are now—and will become increasingly available, careful study of the problem of which of the many lines to handle is indicated—and to simplify this, it is suggested that the units be divided into three separate and distinct assemblies.

Kitchens is the "first"—because so many dealers have already and still are either manufacturing or selling cabinets of one kind or another—the logical "first" point to start is the kitchen.

CONTENTS OF THIS SECTION

Merchandising Trends
Methods of Handling These Products: "The Kitchen Is First"
Kitchen—Requirements
Kitchen Cabinet Arrangement—heights, widths, depths.
Kitchen Cabinet Storage Space Requirements
Kitchen Planning and Layout—Sketching
Kitchen and Laundry Combinations
Kinds of Kitchen Equipment—wood?—metal?—both?
Kitchen Equipment Display and Sales Items
Laundry—Function—Layout—Description
Laundry Equipment and Related Sales Items
Other Related Household Items in Laundry
Bathroom Related Sales Items
General Display Opportunities
Sales Tips for Salesmen

For Related Sections See Master Index

Bathroom, Kitchen & Laundry

Description of Kitchen requirements—This highly important space, which is constantly in use three or more times daily for food preparation, becomes the "work shop" for the housewife—and much could be written on this subject which space limitations prevent—however—a few general principles can be given.

Each kitchen lay-out should be planned with relation to area, window location, doors (and where they lead to), and the economic arrangement of the four essential centers of kitchen operational functions. These are

1. Refrigeration and preparation center.
2. Sink and dishwashing center.
3. Range and serving center.
4. Storage—of divers perishable and non-perishable foods—dishes—pots—pans—cutlery—electric appliances—brooms—cleaners—pails—etc.

Kitchen functional lay-out depends on the location of usable wall spaces—and, depending on the plan, either "U" shaped—"L" shaped—broken "U"—broken "L"—individual center"—"two wall"—or "straight wall"—can be used.

There are several engineered rules, which apply to the location of the work centers, these are

1. The sink should be located between the refrigerator and the range—(this will increase efficiency as high as 40%).
2. The refrigerator should be located near to the kitchen's exterior entry (to expedite perishable food storage).
3. The serving center should be convenient to the dining room or alcove.

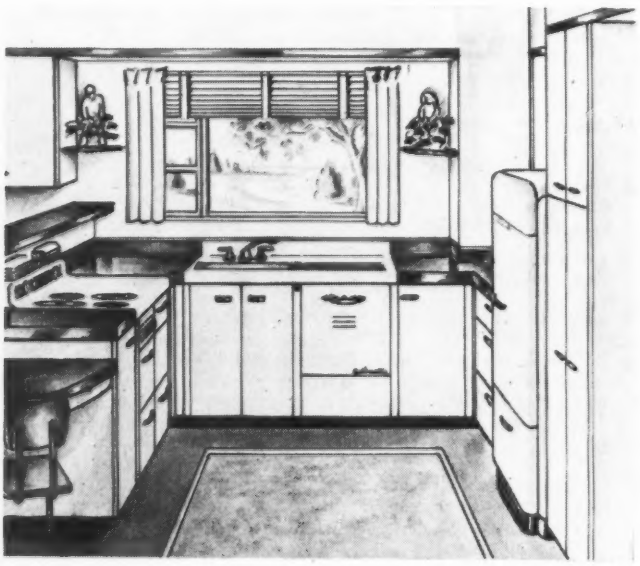
Cabinet arrangement—The kitchen cabinet arrangement consists of two separate divisions the counter or "work platform" units and wall cabinets for storage.

Counter and cabinet heights—and depths—Extensive research indicates that the ideal dimensions, which will provide utmost convenience and absence of fatigue, are:

Counter height from floor to top	35 to 36"
Counter depth from wall to front	24 to 25"
Wall cabinets height from counted surface	15 to 17"
Wall cabinet depth from wall to front	10"
*Wall cabinets Unit height from bottom to top.	36"
Wall cabinets Shelf clearance (for first two)	10 to 11"
Wall cabinets Top shelf clearance for infrequently used items	12 to 13"

Note: *Over ranges and refrigerators, wall cabinets are usually 24".

Cabinet Storage space requirements—For each adult, allow 6 sq. ft. of shelf space, thus for four adults provide 24 sq. ft. plus 6 sq. ft. for entertainment and 6 sq. ft. for accumulated food items or a total of 36 sq. ft.—(this will fit the average requirements of a three bedroom home).



Kitchen planning and lay-out—To logically and efficiently plan the location of the various service units and counter and wall cabinets, a combination sketch is necessary.

This sketch consists of a basic floor plan—in which all doors and windows are accurately shown—and also where the doors lead—whether exterior entry—basement—dining room, etc.

In addition, a separate wall sketch should show each wall and the location of the several units.

These sketches can best be made by using cross section drawing paper to ⅛" or ¼" scale (several manufacturers supply these as part of their service to the dealer).

To assist the dealer in planning for efficient space utilization, several manufacturers have developed typical lay-outs which frequently incorporate space and time saving "dinettes," "breakfast alcoves," and "snack bars" equipped with decorative stools so that during breakfast or the "in between" meals, the entire operation of food preparation and consumption can be concentrated in one economic service area.

Kitchen and Laundry combinations—Recently, a trend as developed to combine first floor space into kitchen and laundry and several manufacturers have provided ingenious workable solutions toward this objective by "streamlining" the laundry units, such as washers, ironers, etc., to form a harmonious combination.

Kinds of kitchen equipment—Much depends on the dealer's present or past operations as well as his planning for future expansion.

There are several alternatives, which he can incorporate into his scheme of merchandising, among which are:—The materials of which cabinets are constructed; the procedure regarding servicing the customer's requirements.

There are several roads to follow—all of which can and do produce desirable results—for instance—

(a) **Unit construction**—this consists of a series of counter and wall units, which, by being prefabricated, may be combined with appropriate "fillers" to fit any wall or counter space as a homogeneous or continous unit.

(b) **Unit construction**—where the separate units are spaced according to the available wall spaces but not necessarily joined together.

(c) **Custom-built Units** — where accurate measurements are taken after all framing, plaster, and "grounds" are in place—and where these dimensions are converted into "tailor made" installations.

Wood or Metal or both?—Because of the many advantages found in either type of equipment, whether it be metal or wood, it becomes a matter of the dealer's personal preference—or its interpretation as far as consumer demand is concerned which of the several avenues should receive primary attention.

Consumer satisfaction is assured—the research and planning by the several industries (both metal and wood) and also the supporting studies and suggestions developed by appliance manufacturers—and in several cases, by manufacturers of floor treatments, will give the purchasers, full assurance of a satisfactory result—irrespective of make or kind of nationally prominent brand names of products, which the dealer may elect to adopt as his merchandise.

Continuity and co-relation—whatever the dealer finally decides upon—with respect to source—or manufacture—is essential.

Inasmuch as both service and appliance units are grouped together in the finished job—and also because quite frequently laundry appliances become a part of the entire ensemble, it is highly important for the dealer to study stock sizes; i.e., heights, widths, depths, and, also (if pre-finished) kind and color of finish treatments; and last, but not least, the type and finish of hardware.

Now-a new book that makes kitchen planning easy!

This new book explains fully the principles of kitchen planning. Eliminates hours of detailing by using the 64 standardized layouts that are adaptable to practically any kitchen. Basic kitchen layouts are clearly indexed so that you may quickly find a design to meet specific requirements.

All layouts are detailed to scale, permitting quick tracing. Elevations and a complete list of materials are included for each design. Four pages of details are given, showing location of doors and windows to assure clearance of kitchen equipment, furring above cabinets, etc.

Efficient methods of lighting and ventilating kitchens are also included. Proper circuits and required number of electrical outlets are specified. Detailed product data, is given along with dimensions and brief specifications. The most unique and practical design book ever produced on kitchen planning. Costs $1.00. Other booklets that may help you are "4 Degrees of Electrical Living" (Free), and "Home Wiring Handbook" ($1.00).

J-91549

Westinghouse

PLANTS IN 25 CITIES... OFFICES EVERYWHERE

BETTER HOMES DEPARTMENT

Westinghouse Electric Corporation
P. O. Box 868
Pittsburgh 30, Pa.

Gentlemen: Please send booklets that are checked:

- ☐ Kitchen Planning Manual ($1.00 enclosed)
- ☐ 4 Degrees of Electrical Living (Free)
- ☐ Home Wiring Handbook ($1.00 enclosed)

Name_____

Street_____

City_____ Zone_____ State_____

Bathroom, Kitchen & Laundry

All of these should "match up" so that the counter tops and ranges—and sinks—and ironers or washers—or deep freeze units are the same height and color.

Sales Items

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

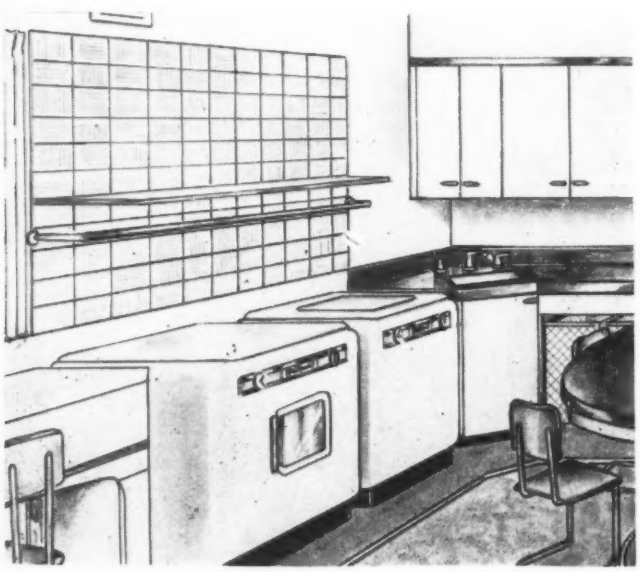
Kitchen Equipment, Display and Sales Items

Item Description

( ) Cabinets—"floor" or counter—wood and metal
  ( ) wall—wood and metal
  ( ) utility—broom—linen, etc.
  ( ) unit sinks—single—double
  ( ) built-in sinks—single—double
( ) Ranges—gas—hot plates—ovens
( ) Ranges—electric—hot plates—ovens
( ) Refrigerators—electric
( ) Refrigerators—gas
( ) Dish-washing machines—units
( ) Dish-washing machines—built-in or combination
( ) Quick freeze units
( ) Ventilators—hoods—fans
( ) Wall covering—tile—linoleum, etc.
( ) Floor covering—tile—linoleum, etc.
( ) Built-in breakfast alcoves
( ) Kitchen management desks
( ) Lighting fixtures
( ) Ceiling and wall finish treatments

Related Kitchen Sales Items

( ) Aluminum ware—assorted
( ) Asbestos mats
( ) Baking equipment
( ) Barbequed tools—grills, etc.
( ) Bread boxes
( ) Breakfast alcove sets
( ) Breakfast bar stools
( ) Broilers—metal (non-electric)
( ) Brooms—Hair—straw
( ) Brushes—Clothes—shoe—vegetable
( ) Cake boxes
( ) Can openers—portable—fixed
( ) Carving sets
( ) Castiron pots—pans—dutch ovens, etc.
( ) Cleaning equipment
( ) Containers—floor—sugar—salt—spices, etc.
( ) Cutler—units—trays—racks
( ) Cutting boards
( ) Deep fryers
( ) Electric small appliances
  ( ) broilers
  ( ) clocks
  ( ) grills
  ( ) mixers
  ( ) ovens
( ) Toasters—automatic—manual
( ) Lighting fixtures
( ) Egg timers
( ) Enameled ware
( ) Food choppers—food grinders
( ) Garbage—disposal units—portable—built-in
( ) Garbage—pails—cans
( ) Heat proof glassware
( ) Incinerators—portable
( ) Incinerators—built-in
( ) Juice extractors
( ) Kitchen china—breakfast sets—luncheon sets
( ) Kitchen step-ladders
( ) Ladders
( ) Lighting fixtures
( ) Matched tinware container sets
( ) Measuring cups
( ) Measuring spoons
( ) Meat thermometers
( ) Oven regulators
( ) Oven temperature control units
( ) Pans—dish—frying—cast iron, etc.
( ) Pastry boards—cloths, etc.
( ) Pots
( ) Pressure cookers
( ) Rolling pins—glass—wood
( ) Rubber mats—floor—exterior—sink
( ) Shopping reminders—pads—boards, etc.
( ) Sink spray—for rinsing dishes
( ) Sink mats—rubberplastic—fabric
( ) Spice containers—glass—metal—plastic
( ) Scouring pads
( ) Stainless steel—pots—pans
( ) Stainless steel—cutler—spatulas
( ) Strainers—assorted
( ) Steel wool—scouring pads
( ) Table ware—knives, forks, spoons, china
( ) Tinware—Individual or matched sets
( ) Towel bars—metal, wood, glass
( ) Trays—assorted—metal, wood, glass—plastic
( ) Utility shelves—metal, wood, glass—plastic
( ) Vegetable brushes
( ) Ventilators—hood—built-in
( ) Venetian blinds—wood—metal
( ) Waste baskets
( ) Wire racks—for cake, etc.



Items Asked For But Not Normally Stocked

The Laundry—The modern home laundry is (particularly when the household consists of growing children) an increasingly important work center for Mrs. Homemaker.

It should be as carefully planned as the kitchen and with the tasteful selection of wall, floor, ceiling treatments and lighting arrangements, can be made equally attractive.

Because it represents, at least, a weekly chore (and in the case of infants almost a daily one), it is under-

Stainless Steel Sinkbowls

Legion sinkbowls are seamless drawn from one piece of solid or single clad stainless steel . . . No welds, rough edges, ridges or grooves to cause leaks, corrosion or cracks where dirt may lodge . . . Light in weight, yet rigid and long-wearing . . . Oblong, square, round or oval shapes . . . Write for catalog sheet.

LEGION STAINLESS SINK CORP.

21st St. and 40th Ave., Long Island City 1, N. Y.

Save This Issue for Reference--

Refer to the advertisement in each section for leading suppliers of the products you need.

Refer to the purchasing directory when doing your buying.

EVERY SECOND WOMAN SAID

"I want a Ventilating Fan"

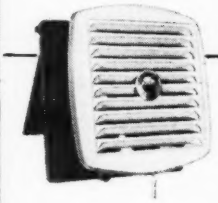
In a recent national survey, 13,877 women were asked about their home improvement plans. 44.4% replied, "I want a Ventilating Fan in my kitchen." Others also plan to install fans in bathrooms, in laundries, in recreation rooms. . . to rid their home of kitchen odors, steam and stale air.

You will find YOUR CLIENTS responsive to your suggestion for the modern necessity for fresh air in the homes you are designing.

WHEN YOU SPECIFY

Victron Ventilating Fans

you give your clients a smartly styled unit that blends into any interior design . . . a thoroughly dependable ventilating fan that changes the air in the average room many times an hour.



FOR EXAMPLE:

Model V 1106 is the ultimate in modern design, with all the built-in top-quality of the Victron line. With quiet efficiency, it moves 700 cf of free air per minute.

THE GRILLE IS REMOVABLE...SEPARATELY ***for easy cleaning***

Housewives especially like this feature; it snaps on and off without tools — or prying. Fits snugly against wall.

WRITE FOR detailed specifications of all models, or refer to 1947 Sweets File 29B-14.

MANUFACTURER OF VICTRON DESK AND PEDESTAL FANS - VICTRON VENTILATING FANS - VICTRON FANS - VICTRON AIR CIRCULATORS - VICTRON EXHAUST PORTABLE IRONERS - VICTRON F. H. P. MOTORS

VICTOR ELECTRIC PRODUCTS INCORPORATED

2950 Robertson Ave. Cincinnati 9, Ohio

standable that the housewife will demand attractive appearance—efficient arrangement of applicances—adequate lighting (because some work may have to be done after dark) and the utmost in convenience—not alone with regard to washing—but also as it affords facilities for drying and ironing and storage.

The laundry may be located either adjacent to the kitchen—or in the basement—and to a large extent, the location of appliances, their size, etc., depends on which of the two locations is decided upon.

Nominally, the laundry appliance equipment consists of a washing machine, electric iron, and electric ironer—supplemented by clothes dryer—or suitable wash-line racks—and adequate cabinet space for soaps, detergents, spot removers, bluing, etc. Curtain stretchers and also a desirable item.

Laundry—located in basement—because of the ample basement floor area generally available, the location of the laundry room and its size presents no great problem.

The primary considerations are that it be located in the area directly below the clothes chute (if any) in a corner of the basement near the basement stairway and outside entrance—and generously supplied with daylight through basement sash, which also serves as ventilators.

The laundry room should be square or nearly so—approximately 10x12 feet and be constructed with finished walls and ceilings in white or bright colors. Flooring should be finished with asphalt tile or linoleum.

Stationary tubs—for hand washing light or colored fabrics not intended for washing machine treatment are a requisite (refer to Sec. 10—Plumbing).

Counter work space may be incorporated at the same height—36 inches—as in the kitchen and the stationary tubs adjusted to the same height.

Some recent washing machines of the rectangular type are now built with removable flat tops and adjustable leveling studs to conform to work counter height—making a continuous top work counter surface possible.

Wall cabinets or open shelves at heights to correspond with kitchen wall cabinets can be of much use in storing soaps, cleaning liquids, etc.

Rotary type washers are usually fitted with generous, quiet rollers permitting them to be easily shifted. If desired, suitable closet space of adequate width and depth can be built to house them when not in use.

Similar procedure can be followed with regard to ironers which too are available in several types—either collapsible "fold away" or "flat top" at counter height.

In planning laundry lay-out, two other considerations which, if followed, will increase efficiency—are:

The inclusion of the domestic hotwater heating unit (its closeness will ensure adequate hot water supply—refer to Sec. 10—Plumbing, etc.).

The location of proper lighting fixtures over the work areas—and well planned placement of the required electrical convenience outlets (refer to Sec. 14—Electric Supplies and Fixtures).

Laundry adjacent to or connected with kitchen—all of the suggestions in the preceding paragraphs relating to the general lay-out apply here with two exceptions, which are:

1. size—space is usually more restricted and greater compactness is necessary.
2. location of stationary tubs, domestic hot-water heater, and dryer—space limitation may compel the location of water heater and dryer in the basement and force the omission of the stationary tubs.

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Laundry Equipment and Related Sales Items

Laundry Appliances

( ) Electric washing machines—conventional
( ) Electric washing machines—automatic
( ) Electric ironers
( ) Electric "sad" or "flat" irons
( ) Clothes baskets—willow—wicker
( ) Clothes dryers—gas
( ) Clothes dryers—electric
( ) Curtain stretchers—wood—metal
( ) Drain hose—for washers
( ) Hampers
( ) Indoor dryers—conventional line with brackets
( ) Ironing boards—portable—built-in
( ) Clothes chutes
( ) Laundry storage cabinets
( ) Wash tubs—portable
( ) Wash tubs—stationary
( ) Wash boards—metal—glass
( ) Wash boilers
( ) Wringers
( ) Water heaters
( ) Water softeners

Other related items usually stored in laundry—

( ) Carpet sweepers
( ) Chamois cloths
( ) Dust mops
( ) Mitten mops
( ) Oil mops
( ) Push brooms
( ) Radiator brushes
( ) Scrub brushes
( ) Wall dusters
( ) Wet mops
( ) Window brushes
( ) Window cleaners
( ) Vacuum cleaners

Items Asked For But Not Normally Stocked

_____
_____
_____
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_____
_____
_____
_____

Bathroom—This highly important personal convenience and sanitary center is constantly subject to improvement, refinement, and no effort is spared to make it attractive and to an increasing degree personal.

Where formerly one bathroom was considered adequate for the average family, the growing trend is to add—either another bathroom, or shower stall, lavatory, and closet, or utility convenience units containing lavatory and toilet.

This trend is caused by the family demands—at certain times, particularly mornings when preparing for school, business, or other duties occur simultaneously.

The overall result is more personal privacy—and incidentally, more opportunities for the dealer—to multiply his sales.

In this description, only those items which are related to bathroom equipment will be considered as sales items.

Bathroom—Related Sales Items

Item Description

For fixtures, such as tubs, shower stalls, lavatories, closets

( ) Accessories—towel bars, soap dishes, glass holders, toothbrush holders, garment hooks, grab bars (either of metal, clay—permanent or "snap on"
( ) Electric appliances—Hair curling irons
  ( ) Hair dryers
  ( ) Razors
  ( ) Heaters
  ( ) Sun lamps—portable—built-in

( ) Germicidal lamps—portable
( ) Infra red lamps—portable
( ) Ultra violet lamps—portable

Other related sales items—

( ) Bathroom mats—shower stall mats
( ) stools
( ) brushes—tub—bowl
( ) Cabinets—medicine—plain—mirror
( ) wall—for storage
( ) floor—for soiled linens
( ) Wall mirrors
( ) Mirror doors
( ) Glass shelves
( ) Glass top dressing tables
( ) Bathroom scales
( ) Tissue holders
( ) Paper towel dispensers
( ) Soap dispensers
( ) Ceiling treatments
( ) Wall treatments.
( ) Floor treatments
( ) Lighting fixtures
( ) Convenience outlets

Items Asked For But Not Normally Stocked

General Display Opportunities—The nature and attractive appearance of the kitchen—Laundry—and bath appliances lends itself to development of a most interest arousing display.

The display arrangement will depend on the dealer's available show space; i.e., wall space—show windows, etc.

By constructing display floor partitions to a four foot height with a two foot projections to form "booths," the various complementary units can be shown in appropriate settings.

This affords opportunity to also show installed samples of floor and wall finish treatments—and lighting effects (wide tops will provide splendid display space for smaller related items).

The lavish use of electric illumination will draw customer's attention—and also provide display opportunity for the electric supply and fixture department (refer to Sec. 14). Price tags should be in bold figures—easy to read.

Twelve tips for Salesmen—

1. Study your employer's stocks—and, by reading manufacturer's descriptions, familiarize yourself with the principal advantages—or outstanding qualities of each item and memorize them to the extent of being able to convincingly impress your customer with the item's desirability.

2. Keep a master file of the descriptive and technical pamphlets in a loose leaf binder so that quick reference to any specific question can be found.

3. Keep pricing information, also stock availability, "up-to-date" by making a weekly check with the office—and adjusting the price book.

4. Study the home building industry as a whole—to discover the many complementary items or products of the dealer's stock are needed, to complete any new home or modernization project.

5. Consolidate such information in a manner which will enable you to visualize the customer's needs—and then, by carefully guidance, assist him to make the proper selection—of all related items.

6. Treat all customers—whether large buyers or one unit purchasers—with courtesy—diplomacy, and tact—remember, "The Customer Is King" and that, on his good will, depends both your own and your employer's future prosperity.

7. Cultivate a memory for names, addresses, and telephone voices—particularly on "repeat" customers—and where possible—greet them by name.

8. Impress them with YOUR name—so that they can call upon you—with confidence—or send their friends to consult you—build yourself a "personalized" clientele.

9. Encourage Cash Sales—whenever possible. When credit requests develop, enlist the Credit Manager's gracious assistance by providing yourself with as much credit information as can be casually and subtly obtained while the sale is in progress—and bring it to his attentoin before introducing the customer.

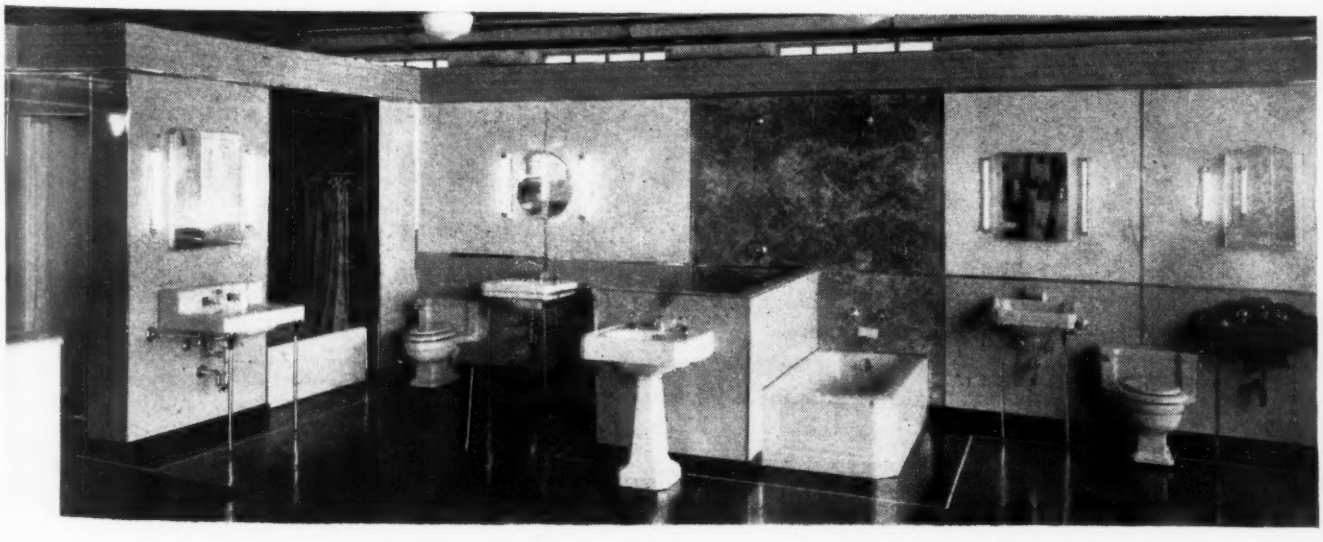
10. On small sale units, particularly if the customer has an automobile, encourage "cash and carry"—suggest that you will wrap the selected items at once—so that they can "take it with them" and avoid the delay in delivery.

11. Personal care in grooming is of definite importance—and every effort to present a neat efficient outward appearance will yield dividends.

12. Good language is important. Avoid the use of slang, epithets, or jocular remarks—cultivate a pleasant friendly voice—at a dignified—sincere—interested and sympathetic level.

Sources of Additional Products Data:

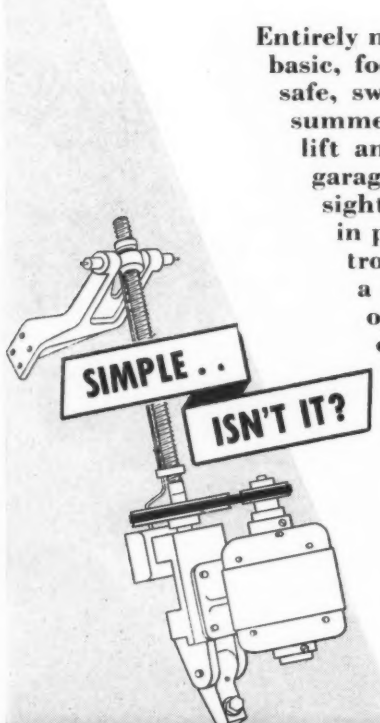
Probably in no department of dealer merchandising are there more dealer helps available than the manufacturer sales aids available in the kitchen-bathroom-laundry field. For additional information on products, their installation, application, estimating, etc., we suggest you write to the manufacturer of electrical and gas appliances and kitchen, bathroom and laundry equipment.



THE POSITIVE-ACTING GARAGE DOOR OPERATOR WITH A FOOLPROOF ELECTRONIC CONTROL

Midget in Size — *Giant in Performance*

Entirely new! It opens and closes garage doors with a basic, foolproof *electronic* principle that is built-in, safe, swift, silent! Installation is quick and easy, summer or winter. Just five screws secure the door-lift and motor unit (shown below) to the inside garage wall . . . out of the way, almost out of sight. It *can't* bind or jam, because it is *always* in perfect alignment. ★ ★ ★ ★ A compact electronic transmitter under the car hood . . . press a button on the dash . . . and garage door opens instantly. After car enters garage, close door by pressing dash button again . . . *or* have an auxiliary button on garage wall or inside house. ★ ★ ★ ★ Best of all, it's priced within easy reach of every home owner or home builder. Compare!



BUILDERS! DEALERS! Sell and install The Electronic Serviceman in your community. Leading distributors coast to coast are lining up with this amazing operator as fast as production will permit. Get full details from your nearest distributor or write us direct.

- **NO DIGGING!** . . . *minimizes tedious and costly installation. Easily installed, winter or summer.*
- **NO WIRES TO STRETCH!** . . . *house-to-garage connection utilizes same radio wave transmission as does auto-to-garage.*
- **NO HORN TO HONK!** . . . *no annoyance to family and neighbors.*
- **NO LIGHTS TO FLASH!** . . . *no one else has the "key" to your garage.*
- **SIMPLE . . . COMPACT!** . . . *entire assembly can easily be transported in the trunk of an automobile.*

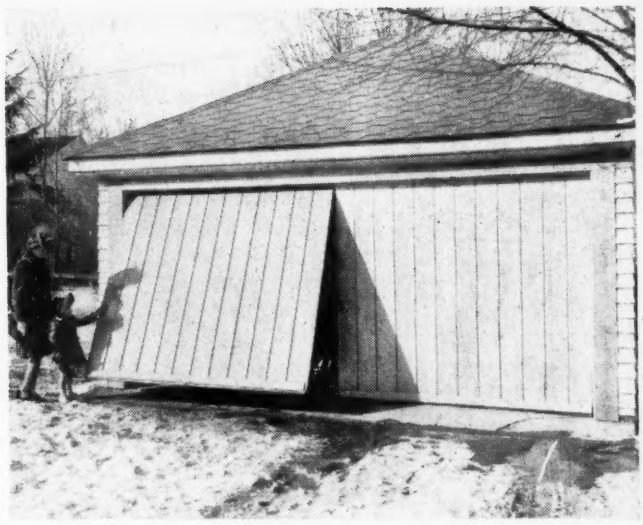
The ELECTRONIC SERVICEMAN

PARRISH PRODUCTS, INC., NATIONAL DISTRIBUTORS

19720 W. Eight Mile Road • Detroit 19, Michigan • REdford 8880

Section 16

Garage Doors and Specialty Selling Items



Specialty selling, loosely defined, is a creative sales program built around a single package or product in which salesmen concentrate their effort on the sale of that specific product to the consumer.

Examples of the widespread use of specialty selling in the building industry are garage doors, rockwool, blown insulation and appiied roofing and siding.

In many metropolitan markets applicating contractors have superceded retail lumberman in these fields but in literally thousands of markets the specialty selling market is wide open to dealer capitalization.

A good specialty selling item would have these attributes:

The average consumer sale should run over $50.00.

It should be accepted for Title I, FHA Insurance.

It should enjoy widespread need on the part of family consumers, farmers or property owners.

There should not be too many competitive organizations soliciting the same business.

Manufacturers training programs should be available for the salesmen.

The average salesman should be able to make a good living selling it. (Often a border-line item can be coupled up with one or more additional or related items viz. refrigerators, deepfreezers, complete kitchen remodeling etc.)

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SALES ITEMS

We have carefully selected a number of specialty sales items that many dealers are promoting successfully. Each of these which meets the above six requirements within individual markets should be given careful consideration by the dealer for its additional sales and profit opportunities.

( ) Garages, Garage Doors and Equipment.

Just one of scores of manufacturers recently sold his one hundred thousandth metal door. This indicates the size of this market. There are now more than 28 million motor vehicles operating. Each of these should be adequately housed. The garage replacement market has had little attention in the war years. There are years of good business ahead in this field.

Supply items include: garage doors of wood and metal; garage door hardware; folding door hardware; overhead door hardware; sliding door hardware; electric door controls.

( ) Screens, Storm Windows, Venetian Blinds, Shutters, Awnings, "Roll-away" Screens.

The chances are that in the average dealers' market these items have been neglected promotion-wise. The specialty salesman offering an **installed** service is welcome at most doors. Weatherstripping is an excellent companion item.

For supply items see Millwork Section 3.

( ) Insulation—Roofing, Siding, Caulking, Leaders and Gutter Work and Weatherstripping.

If aggressive specialty selling organizations are not at work or have not recently covered the market the dealer will find this field especially productive. Production competition is now at the point where valuable franchises are available to aggressive specialty selling dealers.

For supply items see Section 8 and 9.

( ) Paint, Wall Paper, Window Valances and Decorating Items.

Dealers who sell paint applied report 400 percent more actual net profit from the paint department than under materials-only sales. This is a steady repeat business that lends itself beautifully to time payment selling.

See Section 5 for supply items.

( ) Store Fronts, Plate Glass, etc.

Modernization of main street is the order of the day in many cities. This can be promoted to great profit by the wide awake dealer. In many markets the reason more store fronts are not sold is because **no one is asking for the business.** Many related sales and much additional volume for other departments will accrue to the dealer who promotes this market.

For sources of supply see Section 4 and Products Directory.

( ) Termite Controls and Wood Preservatives.

Here is a growing business in areas where insects, fungi, and bacteria attack wood. A natural for the lumber dealer—but important volume can only be secured through creative selling.

See Section 1.

( ) Stained Shingle, Side Walls.

Experts say that the important volume in Red Cedar shingles will be in sidewalls. Double-coursing with second grade shingles underneath give a beautiful shadow line and economy simultaneously.

See Products Directory.

( ) Unpainted Furniture, Cafe Booths, Tablets, etc.

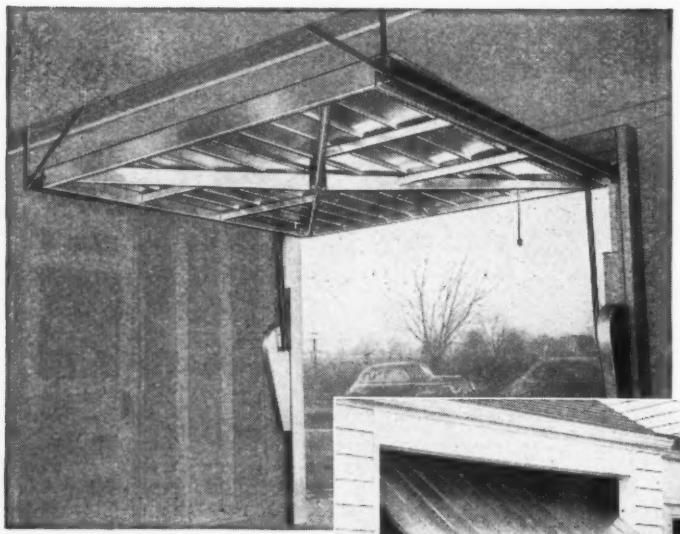
If no one in the market is offering these items many a profitable sale may be had by creatively combing this territory.

( ) Log Cabins, Lake Cottages, Cabanas and Tourist Rooms.

A specially good item for a dealer in or near a resort area. Many of these can be pre-fabricated in the yard during off seasons and delivered to the site ready for use.

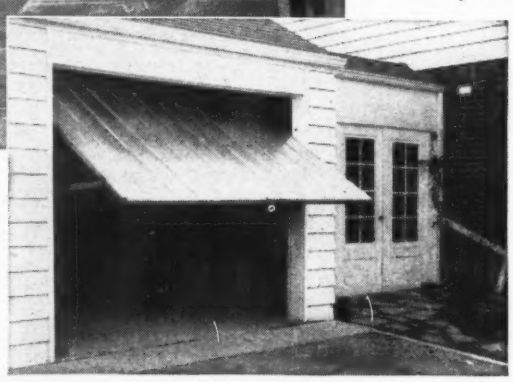
(Continued on Page 340)

BERRY-America's



NEW "FEATHER-LITE" TRACK DOOR ELIMINATES COSTLY INSTALLATION

In designing the hardware for the new BERRY *"Feather-Lite"* DOOR, Berry engineers have eliminated all costly, time-consuming assembly usually associated with overhead track type doors. The operating mechanism is contained in two compact, sealed units that are quickly mounted on the side jambs. Only 2⅝" side clearance is needed. The door is shipped complete in one easy-to-handle package, 4' 3" by 7' 9".



ONLY TWO INCHES HEADROOM NEEDED

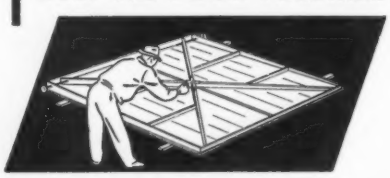
The BERRY *"Feather-Lite"* DOOR can be installed in garages with extremely low ceilings. Only two inches of headroom required.

BETTER VALUE AT LOWER COST

BERRY DOORS have always offered outstanding values at a low cost. They are sturdily built for a lifetime of dependable service. Simple, completely sealed operating units eliminate expensive installation and servicing, and make possible lower packaging and shipping costs—important features to a builder, dealer or owner in selecting a door.

FAST, SIMPLE ONE MAN INSTALLATION

1 BOLT THE DOOR TOGETHER

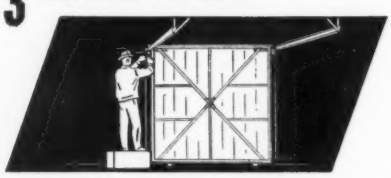


For ease in handling, the door is shipped in one package containing all hardware and two 4' x 7' sections that are quickly and easily bolted together.

2 CENTER DOOR IN OPENING

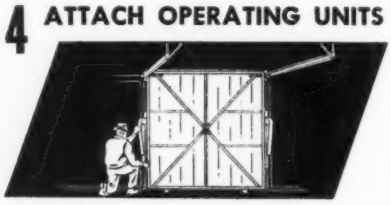
Center the door in back of the opening. Block up door so that the top overlaps the header slightly. Bottom rubber weatherstrip should touch floor to make a good seal.

3 INSTALL TRACKS

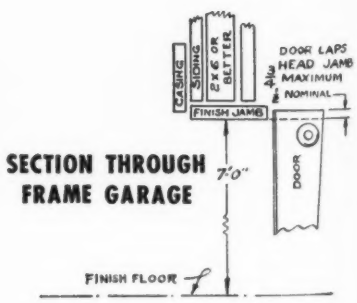


Slide tracks over rollers and temporarily nail to jamb. Hang back end of track in position. Fasten front end permanently to jamb with 1½" wood screws.

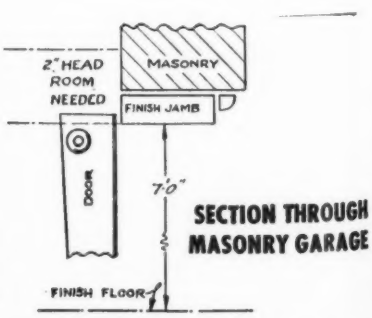
4 ATTACH OPERATING UNITS



Fasten arms of operating units to side members of door. Attach operating units to jambs. Roll door open for proper spacing, then fasten back end of tracks permanently.



SECTION THROUGH FRAME GARAGE



SECTION THROUGH MASONRY GARAGE

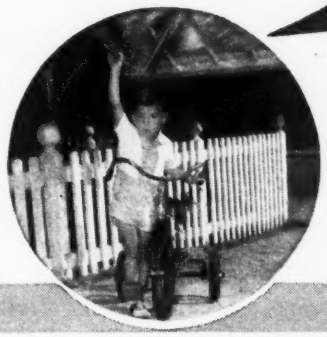
No. 1 Garage Door

STRONG ALUMINUM CONSTRUCTION— WITH *FEATHER-LITE* OPERATION

The new BERRY ALUMINUM *"Feather-Lite"* track type DOOR is one of the strongest garage doors on the market, yet is exceptionally light in weight. The use of aluminum, fabricated by the latest aircraft techniques, makes this super-strength and lightness possible. Its perfect balance makes it an unusually easy door to open and close—a feature that will appeal to every member of the family.

THE SAFEST GARAGE DOOR EVER MADE

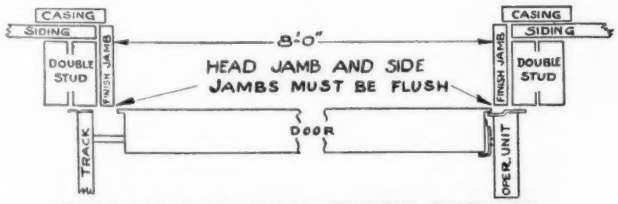
Its overall weight of less than 45 pounds, controlled and balanced by the exclusive BERRY enclosed counterbalancing mechanism, is a safety factor matched by no other door. There are no exposed springs to break and fly or pinch fingers—no weights to cause the door to fall. A small child can safely open, walk under and close the BERRY DOOR —it's just that easy.



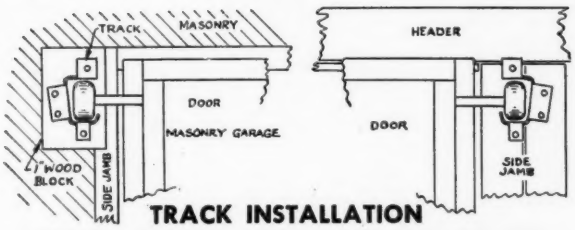
WILL NOT RUST OR ROT— NEEDS NO PAINTING

Aluminum needs no protection from the elements. It can't rust or deteriorate. The BERRY DOOR retains its good looks, even without painting—although it can be painted to match any decorative scheme.

...for FRAME or MASONRY GARAGES...

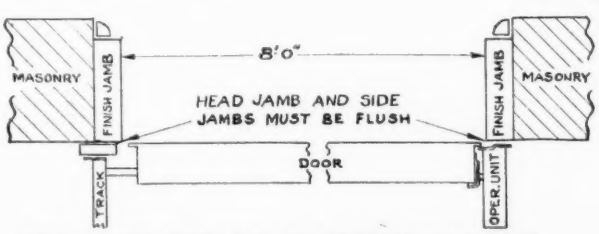


SIDE JAMB DETAILS—FRAME GARAGE



TRACK INSTALLATION

NOTE: Suspend rear of track from garage structure



SIDE JAMB DETAILS—MASONRY GARAGE

FAST DELIVERY ASSURED...

Within the past 18 months BERRY has manufactured and delivered more garage doors than any other manufacturer. The maintaining of this outstanding production record is your assurance of fast delivery.

If you are not able to obtain BERRY DOORS in your locality, write us at once and send your jobber's name and address.

BERRY DOOR CORPORATION

453 SOUTH WOODWARD AVE., BIRMINGHAM, MICH.

Garage Doors—Specialty Selling Items

(Continued from Page 337)

( ) **Enclosed Porches.**
Many applicators in city markets are doing a good business on this single item. Dealers can offer in conjunction a porch, driveway, and walks repair service.

( ) **Waste Space Utilization.**
Here is another item that could be a business in itself. Nearly every house over 20 years old—there are millions of them—has unused space in attic or basement that could be converted into living or recreational quarters. Additional rooms secured through the conversion of unused space can be had at 20 percent of the cost per room in a new house.

( ) **Complete Kitchen, Bathroom and Laundry Remodelling Jobs.**
See Section XIV.

( ) **Air Conditioning and Commercial Refrigeration.**
A new and almost centered specialty in lumber yards—but one with a consumer demand already built for it. Theatres, stores, etc., with air conditioning have made the public want it. Commercial refrigeration makes an excellent companion promotion.
See Section 10 for supply items.

( ) **Asphalt Tile Flooring.**
In metropolitan areas specialty contractors have a profitable business in this item alone. If the dealers market is not serviced he should look into this. It is a coming business in lumber yards. The same dealer salesman could sell hardwood, linoleum and all other types of flooring.

( ) **Acoustical Treatments.**
Like flooring this is a profitable business for specialty applicators in densely populated areas. In smaller towns the dealers may find it a profit builder.

( ) **Incinerators, Fire Extinguishers, Wall Safes and Lightning Rods.**
The abler type of specialty salesman has been able to make a living on most of these items for years. The dealer who uncovers how his customers supply their needs for above may find they are not supplied—and if not why not sell them?

( ) **Water Softeners.**
One dealer who operates a lumber yard, filling station and coal business reports that he made more money in 1946 on water softeners than any of the other three. If you are in a hard water area this might be worth looking into.

( ) **Sanitation Chemicals and Sewage Treatments**—Here is a badly needed consumer service that is both badly needed and not adequately covered in many markets. A Real Opportunity!

( ) **Hardwood, Plywood, Veneer and Hardwoods**—An item that goes well with the promotion of home work shops. With ever increasing leisure American families are constantly on the lookout for pleasurable and profitable ways to use their spare time. Light industries, farms, schools and institutions are good prospects too!

( ) **Rustic and Decorative Fences**—Some dealers have found this an extremely profitable item, almost a department in itself. One dealer sold $20,000 volume on this item alone in a single year! It goes nicely with Lawn and Garden items, driveway and walk improvements, repairs, etc.

( ) **Floor Renewals**—A complete Floor Service could be sold as a specialty item—Floor sanding and polishing, floor coverings, asphalt tile, pre-finished hardwood flooring, linoleum, etc.

( ) **Attic Expansion and Ventilation**—Many attics provide space for an extra bedroom or two, a play room or studio. This item can be combined with attic ventilation and insulation in a specialty sale.

( ) **Timber Connectors**—Every year there is increased utilization of the ingenious aids to heavy construction. Dealers with market needs in the areas of roof trusses, bridges and heavy construction, poles, cross arms, glued construction and pre-fabricated housing should write Timber Engineering Company, 1319 Eighteenth Street, Washington, D. C. for data covering this field.

( ) **Indoor and Outdoor Fireplaces**—Through manufacturers' research in recent years, successful fireplaces are an exact science. Dealers can approach the market on a specialty basis with complete confidence in adequate producers' support.

( ) **Recreation Rooms, Play Quarters and Refreshment Bars**—Every home with a dry unused basement space is a potential for this type of specialty sale—An extra profitable item for winter time sales.

( ) **Adhesives**—The progress in glues and adhesives in recent years has been so marked that it is almost possible to bind any material to another in such a manner that the combined unit is stronger than either. The forward-thinking dealer will be the local adhesive specialist.

( ) **Asbestos, Asphalt and Aluminum Sidewalls**—The coverage of this market is a must for the dealer who wishes to adequately protect his competitive area. See Roofing and Siding Section.

( ) **Frozen Food Lockers**—This item might be treated as a selling specialty itself if the local opportunity is not being completely covered—or it may be combined with appliance, air conditioning and refrigeration sales.

( ) **Knotty-Pine, Hardwood and Redwood Paneling**—The demand for charm and beauty in interior walls make these items a profit opportunity. With the return of supplies to this field the dealer should check this potential.

( ) **Shelf Units, Radiator Covers, Expansible Cabinet Units**—Lumber and wood working producers are refining these products more every year. These refinements often provide exceptional specialty selling opportunities to dealers.

( ) **Shower Cabinets and Wall Tile of Enameled Wood, Asbestos, Plaster, Metal and Clay**—This is typical of the possible combinations in specialty selling.

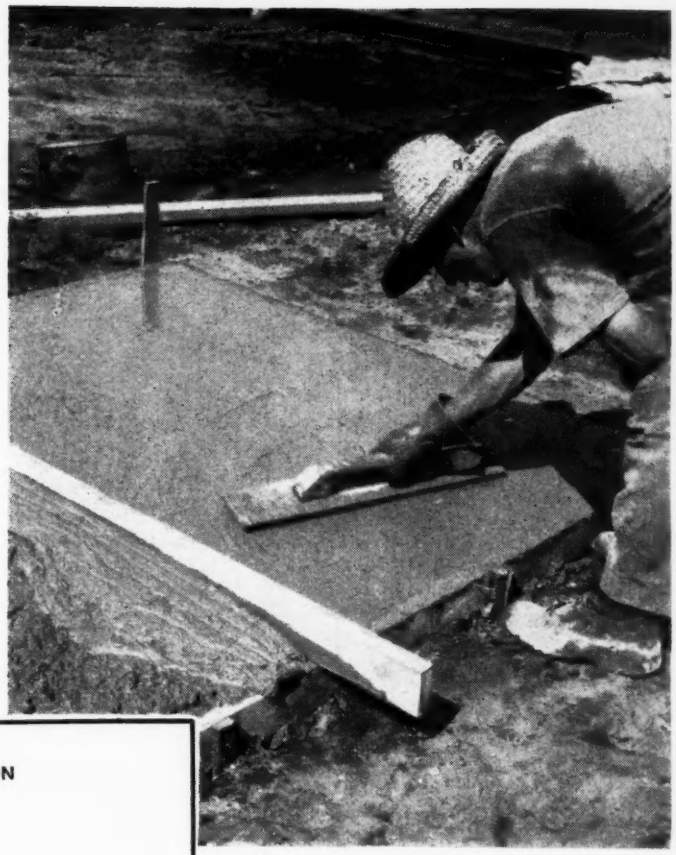
Items Asked For But Not Normally Stocked

Specialty selling is package selling—wrapping up the labor and materials in the project and delivering a completed unit to the customer ready for use.

Summarizing, the opportunity for specialty selling is wide open in small, medium and metropolitan marketing areas. The dealer may cut his "line" and "staff" to his individual potential.

Section 17

Cement & Masonry Products



CONTENTS OF THIS SECTION

Accessories
Cement Block
Cement Brick
Cement Paint and Accessories
Concrete Aggregates
Concrete Reinforcements
Estimating Tables
Light Weight Aggregates
Portland Cement—The Product
Tips for Salesmen

For Related Sections See Master Index

This division of the retail lumber and building products business covers a wide variety of products.

Portland cement—This extremely important product has been developed to meet consumer demand for "standard cement," "high early strength," "white" cement, waterproofed cement both standard, and white.

Premixed cements and mortars—There are several portland cement base products which are prepared for brick work mortar and stucco plaster. These come in two main varieties. One is already "sanded" and needs only to be mixed with water. The other is pre-processed to afford maximum plasticity but does require admixture of both sand and water.

Premixed dry concrete—One manufacturer offers premixed dry concrete as well in 25, 50, and 100 pound bags to enable the small consumer to install the fence post or the clothes pole, or the broken section in the walk without purchasing cement, gravel, and sand separately.

Concrete—Portland cement is the most essential ingredient of concrete. Concrete is made in a number of ways—

(a) Cement, gravel, or crushed stone are delivered to the job and mixed by hand (where the quantities are relatively small, this is still an efficient method).

(b) Same as above except that the contractor will use a power driven mixer which not only saves laborious work but gives the assurance of a thorough mix in either moist, damp, or wet applications.

In either of the foregoing, waterproofing compounds, either inherent in the cement or added as liquid or powder while the mix is in process, can be incorporated for those areas which require this protection.

Mobile machine mixed concrete—In recent years, an increasingly acceptable method of obtaining concrete has been developed by equipping trucks with rotating motor driven cylindrical mixers. These are loaded through appropriate hoppers from several elevated storage bins with any kind of aggregate or cement.

Of the several types of machines used for this purpose, there are two which require description. One is where the water is added to the dry mix at the point of origin (actually the mixed concrete is loaded into a rotating drum when it leaves the factory). The other type is where the dry mix is loaded and mixed by rotation on its way to the job where water is added.

Ready mixed mortar—In larger cities where jobs of considerable size are built, similar practices have been developed to supply ready mixed cement mortar for masonry walls, top-coating of concrete floors, and plastering of masonry walls. This method has the same desirable feature of saving time, space, and labor on the job; and, as a consequence, can not but help to accelerate the project.

Concrete aggregates—Because the qualities of concrete or mortar depends, not only on the kind and amount of cement in any mix, but equally so on the kind of aggregates, this item has, in recent years, received careful attention.

In order to control both the quantities and the purity of the mix, the processors developed

Crushed Stone—screened and graduated to size
Gravel—Washed—screened and graduated to size
Sand—washed—screened and graduated to size

All foreign matter, such as loam and clay, has been separated; and the present day available aggregates are a distinct improvement and have furthered the consumer acceptance of concrete to a large degree.

Two other aggregates, cinders and slag, are becoming

increasingly acceptable in certain phases of the use of concrete.

Cinders, of controlled maximum size (with an admixture of smaller particles) graded to specification, are being widely used as an aggregate for concrete block, medium weight bearing floors, etc. A tough, firm, light weight concrete results from the use of cinders—usually used without sand.

Slag, a by-product of iron foundries, is, after grading for size, an excellent light weight yet strong aggregate. Because it has sharp edges and corners, the cement paste in the concrete has an opportunity to coat these surfaces. Slag aggregate is usually mixed with sharp sand in order to fill the voids.

Concrete Mixing

It is important that only a limited measured amount of water be used in the concrete mix. Over diluted cement paste, which hold aggregates together, means weak and porous concrete. Water is conveniently measured in a pail marked gallons or half-gallons. Sand and gravel may be measured in a 1 cubic foot box. Portland cement is sacked 1 cubic foot to the sack.

Machine mixing is the most convenient for farm use. After all materials are in the mixer, allow one to two minutes of mixing, place in forms immediately.

Hand mixing. Place the measured amount of sand on a watertight mixing platform. Spread cement evenly over the sand and turn the two materials with a shovel until a uniform color shows that sand and cement are thoroughly mixed. Spread mixture out evenly and add measured amount of gravel. Mix thoroughly again; then form a hollow in the material and slowly add the measured quantity of water. Mixing should continue until every particle is completely covered with cement paste.

Placing of Concrete

Concrete should be placed in forms immediately following mixing. Concrete in forms should be tamped and spaded or vibrated to assure a dense concrete.

Finishing

Newly placed concrete is leveled off in the forms with a wood float. Further finishing is delayed until concrete hardens enough to become quite stiff. If a non-skid floor is desired, a wood float is used to produce the final finish. If a smooth dense surface is required, a steel trowel is employed in finishing.

Curing

Concrete needs moisture to harden properly; therefore, new concrete should be protected from drying for at least five to seven days. Floors and other horizontal surfaces should be covered with earth, burlap or straw and this material kept wet for the required time. Walls should be covered with burlap or canvas and this material kept wet; allowing forms to remain in place will provide some protection.

Concrete re-inforcement—Engineering research by both the Cement Manufacturers institute and the Iron and Steel industry has resulted in the development of many highly essential re-enforcing units. Most generally used are round or square bars, welded wire mesh and metal lath with stiffening ribs.

Expansion joints—Concrete is subject to expansion and contraction imposed by temperature. Research has proven that the "cracks" which result can be largely prevented; and likewise the stresses to supporting or surrounding members, which expansion causes, by the provision of expansion joints which are placed at stated intervals (casual inspections of pavements, highways, bridges will serve to illustrate this practice).

Expansion joints are a problem in that they must be able to "squeeze" or "stretch" and yet remain water, weather, and wear proof and resume their original shape. There are many types, some of which are for specific use, others for general application.

Cement Block—In the early stages much harm was done by many opportunists who embarked in the cement block manufacturing business and used inferior aggregates as well as manufacturing processes.

However, with the employment of controlled aggregates (cinders and slag are now widely used) and the proper amount of high early strength portland cement combined with power tamping, which compacts the aggregate and results in a dense, uniform unit which is steam cured to provide the necessary moisture and allow the concrete to attain full strength, the cement block has come into its own.

Improved design of molds has resulted in the mass production of an accurately dimensioned, tough, and durable construction unit at low price to consumer.

Because weight has been sharply reduced, masons can and do perform much better.

The cinder aggregate block can be nailed into with ease and yet hold the nails very securely wherever furring strips or finish moldings are applied.

Because the block, as now manufactured, has a straight plain face without facing mixtures, it provides an excellent plaster base for portland cement mortar either below grade (for waterproofing purpose) or above grade for attractive exterior wall finish treatments.

( ) **Cement brick**—In some areas where clay brick are scarce, the production of cement brick has gained increasing acceptance.

When manufactured under conditions which provide for proper mix—aggregates, power tamping, and curing, the cement brick becomes an attractive building unit and lends itself admirably to practically all types of construction where brick must ordinarily be used.

They can be either solid or hollow, in natural grey color, or colored with pigments during manufacture.

Surface textures can be either smooth or textured to resemble "tapestry" or "wire cut" clay brick.

( ) **Mason's cement, mortar, and colors**—Mortar is one of the oldest products in the building industry and has been composed of a number of ingredients, such as: clay and sand; natural cement, lime, and sand; portland cement and lime and sand; processed mixtures, with or without sand.

To recognize the importance of mortar, it must be understood that any masonry wall or chimney depends for its durability on the plastic medium called mortar which connects and holds together the masonry elements of the structure.

Formerly, lime mortar was the only type available and examples of its lasting properties are still to be found in buildings which were constructed centuries ago.

With the discovery of natural cement, a mortar was developed which had the property of hardening to a much greater extent than lime.

Portland cement revolutionized the former concept of what mortar should be. It was found by experiment that cement, sand, and lime in proper proportions for the intended purpose became, because of the hardening properties of portland cement, a more desirable material in that it quickly became as hard (and in many instances harder) than the masonry units which it served to connect and that its durability increased with age.

There are, at present, numerous formulas regarding the correct amounts of each ingredient; some of which vary whether the work is above or below grade and whether common brick, cement block, or stone are being laid.

Much depends on custom and geographic location; and also the habits formed by the laborer who mixes the mortar. To overcome the individual habits of the laborer, who does the mixing, several manufacturers have made available to building products merchants a pre-prepared, packaged mortar, some of which are factory mixed with the proper proportion of the grade of sand best suited for the purpose and others where sand is added in prescribed amounts at the time it is mixed on the job.

Because of the uniformity of the resulting mixes and the workability and durability of the product, more and more acceptance is being extended to this type of controlled mortar mix.

A good mortar must have the following characteristics if it is going to provide the desired results.

a. **Plasticity**—Within certain limits plasticity is the greatest single factor not only in the economy of brickwork, but also in its strength, neatness, and its resistance to the passage of water.

b. **Water Retention**—Water retaining capacity is the ability of a mortar to retain its moisture and hence its plasticity, when spread on porous brick. If the mortar does not have high water retaining capacity it is too quickly sucked dry by the brick; the mortar

GET READY NOW TO CASH-IN ON CELADRI

THE *Guaranteed* MASONRY WATERPROOFING

. . . with TEN Big Sales Appeals

1. Can be used on all porous masonry inside or outside.
2. Available in white and six colors.
3. Easily applied by anyone.
4. Economical.
5. Will not peel or rub off.
6. Completely odorless.
7. Dries rapidly.
8. Paints and waterproofs in one operation.
9. Improves with age.
10. Money-back guarantee.

. . . with a Big Performance Record

Owners of homes, stores, gas stations, factories, farm buildings — thousands of people have used Celadri for waterproofing and decorating masonry surfaces, both inside and out. Celadri is not a new, untried product. It is not just another ordinary so-called waterproof paint. No expense has been spared to make Celadri the finest product of its kind.

. . . with a Big Public Demand

Every month nearly six million people are reading about Celadri in a powerful advertising campaign in national home magazines. These are the people who DO things about improving their homes. Thousands of them live in *your* trading area, many are *your* prospects and customers. They will be looking for a place to buy Celadri.

. . . with Eye-catching Dealer Helps

Colorful point-of-sale displays, attractive folders, and a wide variety of attention-getting newspaper mats are available for your immediate use. They are ready to bring customers into *your* store.

This is Your Opportunity

to handle a profitable, reliable masonry waterproofing and tie-in with, and take advantage of, Celadri's national promotion. Order a supply of Celadri now from your distributor. It is available for immediate shipment. Or write to us direct for descriptive literature and further information.

Manufacturers of Masonry Waterproofing

Celadri CORPORATION

DEPT. B, 652 WILLIS AVENUE
WILLISTON PARK, NEW YORK

stiffens too soon, the brick cannot be properly bedded and a good bond cannot be obtained.

c. **Good Bond**—The first function of a mortar is to form a strong permanent bond with the entire surface of the brick.

d. **Thoroughly Waterproofed**—Mortar should be thoroughly waterproofed to further assure dry walls.

Permanently dry walls, free of efflorescence and fading (in case of colored mortar) economically constructed, is the desire of every architect and builder.

Use

All type masonry—Brick, concrete block, stone glass block
Plaster —On masonry backup or metal lath only
Stucco —Masonry backup or metal lath only

Mixing

1 part Masonry Cement to 3 equal parts of sand
No lime or portland cement necessary
No soaking—No slaking

Hand Mixed

a. Mix sand and Masonry Cement thoroughly, at least four or five dry turns before adding water.

b. Add a bucket of water for every bag of Masonry Cement in the mix. Hoe the mix until it becomes damp throughout.
(Be careful not to flood the dry mix at first as this separates the cement from the sand and makes more hoeing necessary.)

c. Slowly add a little more water and hoe until mortar is in shape to place on mortar board. Be careful not to add too much water.

Machine Mixed

a. Throw in about ½ bucket of water so the material will leave the machine clean. Throw in part of the sand—then the cement—then the rest of the sand. Run the machine several revolutions before adding more water.

b. Add water slowly and be careful not to flood the mix.

A one bag mix in the machine takes only about one and one-half buckets of water.

Estimating Data for mortar and stucco mortar.

One bag of Masonry Cement contains one cubic foot when mixed 1-3 with sand, 9 bags of Brixment and 27 cubic feet of sand make one cubic yard of mortar. For average job this is usually sufficient to lay from 1500 to 1800 brick. 1000 brick usually requires from 5 to 6 bags of Masonry Cement.

HOW TO ESTIMATE FOR STUCCO AND PLASTER

(Per 100 Square Yards of Solid Wall Surface)

Thickness of Stucco	Cubic Yards of Sand	Bags of Masonry Cement
¼"	.74	6.6
⅜"	1.10	9.9
½"	1.47	13.3
¾"	2.21	19.9
1"	2.94	26.5

Colors—All mortars may be colored with the admixture of dry pigments. This extends to white cement and white or seashore sand for the finish textures.

Waterproofing—Many specifications now call for waterproofed mortar. Such protection, which is highly desirable, is accomplished by two common methods, as follows:

1. Portland cement is used, which has been processed at point of manufacture with waterproofing agents and is usually termed "integral" waterproofing.
2. Ordinary portland cement is used and liquid base or powder type of waterproofing is blended either with the dry mix (when powder is used) or with the mixing water if the liquid type is employed. Excellent results are produced by any of the three methods.

Cement paint—To enhance the appearance of cement plastered surfaces, a number of products have been developed. Generally these fall into two primary divisions and the kind of exposure or use will determine which is best suited for the consumer's needs.

Group 1—consists mainly of those finishes which, when mixed with water, will form a paint that may be either sprayed or applied with a brush.

These products come in white and colors and are water resistant and give excellent service on exterior and interior vertical wall surfaces.

These products are generally made with a portland grey or white cement base with chemical admixtures designed to improve their workability.

Some are manufactured and packaged in powder form; others in a paste form and some are formulated so that, if desired, they can, by the addition of white or marble dust, be applied as a texture finish.

Group 2—consists of oil base paints and enamels. These are formulated to produce a durable wearing surface on basement, garage, and porch floors.

To minimize saponification where oil base finishes are applied to new untreated cement or concrete surfaces, it is quite customary to pre-treat the surface with a solution of sulphate of zinc which, when dry and the excess brushed off, causes the cement surface to receive the paint or enamel with less possibility for failure.

This group of finishes comes in many shades of colors and an attractive durable floor surface can be obtained by their application, particularly if the maker's directions are closely observed.

Calcium chloride—The addition of calcium chloride in the recommended proportions to concrete mixes is becoming more prevalent in those areas where low temperatures occur. This chemical lowers the freezing point of the water in the mix and, by its controlled use, concrete can be placed in sub-freezing temperatures without freezing.

It also has a definite effect on the concrete mix by increasing the "slump" and, as a consequence, a mix treated with it will adapt itself to placement in intricate forms and, because of the greater "slump," result in a more homogenous mass with fewer voids.

It has properties which make it adaptable to many other uses, a few of which are laying dust on driveways or tennis courts; keeping damp cellars dry; melting snow and ice on walks, etc.

It is usually packaged in 50 and 100 lb. bags which are double walled made with highly moisture resistant fiber and carefully sealed to preserve the contents. On account of its definite affinity for water it must be stored in unbroken packages in a dry place.

Light-Weight Aggregates

In addition to stone, gravel, cinders and slag aggregates for structural concrete, in the last few years a new light-weight group of manufactured aggregates have been perfected.

Of these, one of the widely accepted is an "exploded" or "puffed up" alteration product of mica. This, when heated, expands to nearly fifteen times its original size and, in the shape of aggregate for concrete, weighs between five and six pounds per cubic foot.

When compared with sand, stone or gravel aggregates, which weigh nearly 100 pounds per cubic foot, the advantages become evident.

Engineers and architects are rapidly taking advantage of these characteristics and using the product whenever design and thermal conditions permit.

Fireproof, rot proof, termite proof, an excellent nonconductor and practically non-hygroscopic, clean, easy to

More evidence of how the NATION turns to

AQUELLA

to make Wet Walls and Cellars DRY

Applications of Aquella are being made every month—in every part of the country—on every type of porous masonry structure. There's never been anything like this demand—or this product—in the waterproofing industry. Working on an entirely new principle, Aquella is the *mineral* surface coating that first sprang into fame when it successfully controlled water seepage in the flooded underground tunnels of the French Maginot Line. Now it is being specified by leading architects, engineers, building and waterproofing contractors throughout the land.

Back of this tremendous nationwide acceptance is a national advertising program never before equalled in the waterproofing field. People harassed by leakage problems want Aquella—and *you* want their business and the substantial profit each bag of Aquella yields. The season is right—the need is great—don't lose a day identifying your store as Aquella headquarters. Send coupon or wire for name of your nearest Aquella distributor.

Residence...Stockton, Cal.

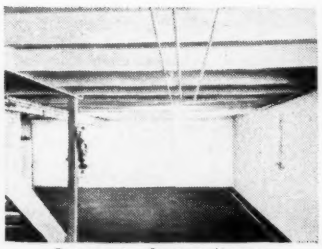
Basement...Vancouver, Wash.

Funeral Home...Bayside, N.Y.

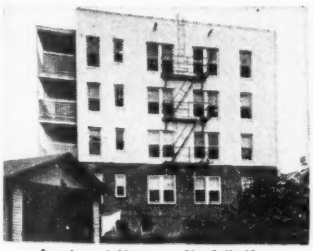
Living Room...Ft. Lauderdale, Fla.

Residence...Buffalo, N.Y.

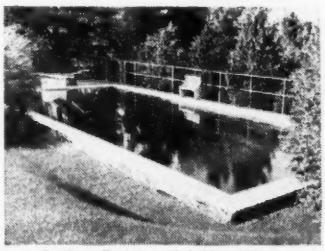
Farm Home...Smith Station, Ala.



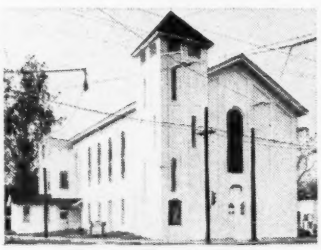
Basement...Parsons, Kansas



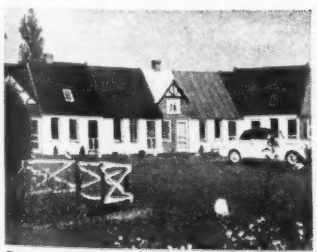
Apartment House...Norfolk, Va.



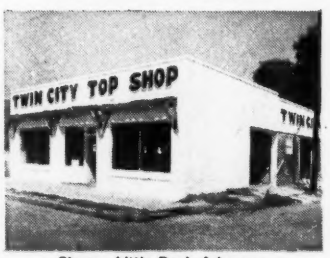
Pool on Estate...Uxbridge, Mass.



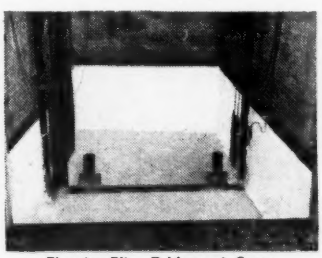
Church...Memphis, Tenn.



Belgian Tourist Ct....Hwy. US40, Balt., Md.

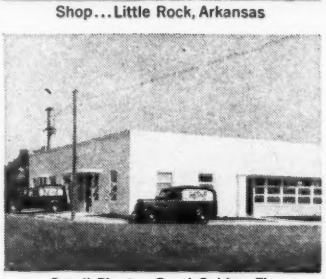


Shop...Little Rock, Arkansas

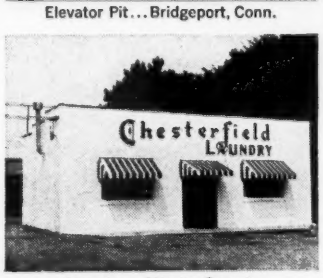


Elevator Pit...Bridgeport, Conn.

Animal Hospital...Lansing, Mich.



Small Plant...Coral Gables, Fla.



Laundry...Atlanta, Georgia

$3.95 PER BAG (Higher west of Rockies and in Canada)

Mixed with water, according to directions, one bag makes 1 gal. First coat covers approximately 100 to 120 sq. ft. per gal.; second coat, 200 to 250 sq. ft. per gal.

Sell Aquella No. 1 for Interiors . . . Aquella No. 2 for Exteriors.

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Please send complete information on Aquella and name of nearest distributor.

Firm Name .....

Address .....

City ..... State .....

handle, inert, inorganic with no reaction to other substances, makes it ideal for many applications.

The penticles approximate ⅛ inch in size, and the finished concrete mix (depending on cement content) may weigh as little as 16 pounds per cubic foot, whereas ordinary stone or gravel concrete will approximate 140 pounds and cinders or slag from 75 to 95 pounds per cubic foot.

With the admixture of liquid waterproofing (approximately 1 quart to each 3 cubic feet of aggregate) a very desirable mixture results. This can be used for roof decks, light weight load floors, precast slabs for roofing, accoustical tile and many other practical applications.

These properties, of light weight, insulating value, ease of handling, lesser weight of supporting steel, etc., coupled with general availability, (processing plants are now operating in forty key cities) combine to make this aggregate a product worthy of any dealer's attention. While he may not store it in large quantities, a reliable service source should be established.

Likewise, local cement product manufacturers should certainly explore the possibilities of its use, both as to delivery of light weight concrete via the "transit mix" method, and also the benefits of producing pre-cast, light-weight roof slabs, accoustal tile and other structural units.

Vermiculite Concrete Aggregate

Vermiculite Concrete Aggregate consists of Vermiculite graded to the same size as ordinary sand used for aggregate in concrete. It is packed in paper bags containing about four cubic feet and weighing approximately 35 pounds.

Concrete is made by mixing Vermiculite Concrete Aggregate with Portland cement and water. To make the concrete integrally water-repellant and to increase its coverage, Vermiculite Waterproofing Admix is added to the concrete during mixing. It is a special bituminous waterproofing compound which comes in 5 gallon cans and in 30 and 55 gallon drums.

Vermiculite Concrete can be mixed by hand in a clean watertight box or in a mechanical mixer. The proper porportions of Portland Cement and water shall first be mixed. The Vermiculite Waterproofing Admix shall next be added and thoroughly mixed with the cement and water. The Vermiculite Aggregate shall finally be added and mixed long enough to obtain even distribution of cement, water and Waterproofing Admix and a free flowing mixture.

Wherever a structural material providing a warm, dry surface is needed, Vermiculite Insulating Concrete can be used to advantage. It can be mixed and poured on the job, or it can be precast into blocks or slabs and laid into place. It has sufficient strength to be used in structural floor and roof construction, and is also extensively used as an insulating concrete fill over existing floors. Due to its extreme light weight it does not place undue strain on framing members.

Vermiculite insulating concrete requires a surface coating wherever it is to be exposed as a wearing surface. It is recommended that a hard cement topping be placed over Vermiculite concrete when it is used in floors. A cement finish of 1 to 2 inch thickness is ordinarily used, depending upon the service conditions of the floor. A mix of 1 part cement, 1 part sand and 2 parts coarse aggregate produces a satisfactory topping which should be reinforced with 4x4 inch mesh made of No. 8 gauge wire.

The placing of the cement finish should be delayed as long as possible to give the Vermiculite concrete the opportunity to thoroughly dry out.

You will notice in the guide sheets following that brooder houses and laying houses have Vermiculite Concrete top courses while hog houses and dairy barns have a hard concrete topping.

Concrete Blocks also can be made from Vermiculate Concrete Aggregate*.

RECOMMENDED MIXTURES FOR SEVERAL CLASSES OF CONSTRUCTION
Intended primarly for use on small jobs

Kind of Work	U. S. gallon of water to add to each 1-sack batch			first batch Trial mixtures for			Maximum aggregate size
	Damp sand and pebbles	Wet sand and pebbles	Very wet sand and pebbles	Cement	Sand	Pebbles	
Foundation walls which need not be watertight, mass concrete for footings, retaining walls, garden walls, etc.	6¼	Average sand 5½	4¾	sacks 1	cu. ft. 2¾	cu. ft. 4	in. 1½
Watertight basement walls, walls above ground, lawn rollers, hotbeds, cold frames, etc. Well curbs and platforms, cisterns, septic tanks, watertight floors, sidewalks, steppingstone and flagstone walks, driveways, play courts, outdoor fireplace base and walls refuse burners, ash receptacles, porch floors, basement floors, garden and lawn pools, steps, corner posts, gate posts, piers, columns, etc.	5½	Average sand 5	4¼	1	2¼	2	1½
Fence posts, grape arbor posts, mailbox posts, etc., flower boxes and pots, benches, bird baths, sun dials, pedestals and other garden furniture, work of very thin sections.	4½	Average sand 4	3¾	1	1¾	3	¾

PROPERTIES OF MOST COMMONLY USED MIXES OF VERMICULITE INSULATNG CONCRETE

Mix No.	Mix by Volume						
	Bags Portland Cement	Cubic Feet Vermiculite Concrete Aggregate (See Note)	Qts. Vermiculite Admix	Gals. Water	Density in Lbs. Per Cu. Ft.	Comp. Strength Lbs. Per Sq. In.	"K" Factor
A	1	3	4½	10½	38	380	1.70
B	1	5	5½	16¼	27	150	.69
C	1	6	6	19½	24	115	.65
D	1	8	7	26	22	70	.60

Above mixes commonly used as follows:

Mix A—Poultry House Floors

Mix B—Structural Roof Decks

Mix C—Floors in Hog Houses and Dairy Barns

Mix D—Insulating Fill over structural roof decks, insulating floor fill in residences, and for insulating floors in locker plants and cold storage buildings.

Note: In estimating quantity required, each cu. ft. of Vermiculite Concrete Aggregate will produce approximately one cu. ft. of concrete in place.

Dealer's function—(with regard to these products)—Because portland cement, concrete, brick mortars, etc., form such an essential part in the process of any construction activity either residential, industrial, or commercial, the retail dealer should examine the possibilities of merchandizing these products efficiently and at a profit.

The extent to which these products and services can be delivered by the dealer to the consumer depends on several factors among which are

1. Available storage space.
2. Local competitive conditions.
3. Capital for expansion by adding equipment.
4. Size of potential market within economic trucking radius.

Because of these factors, the retail dealer or building products merchant is faced with three alternatives.

1. He can operate with a minimum stock of the essential items sufficient for over-counter sales and divert larger orders to concerns who specialize in these services.
2. He can operate with minimum stock and establish profitable trade relations with concerns who specialize in these products and services and still control the sale and realize a profit.
3. He can enlarge his plant to accommodate the equipment, machinery, and required storage space to enable his own organization to handle the problem.

Sales tips for salesmen—Sell the complete services of your company. Study the Manufacturer's literature of the products, which your company stocks. Have a supply of each of these pieces available so that a prospective customer can take them home and study them.

When selling cement block suggest an extra course to increase basement ceiling height in order to provide essential "head room" (this alone can increase the block sale by 10 percent).

Aid in the selection of basement sash, which will be appropriate—see Sec. 11.

Point out the latest type of area enclosures to fit the selected sash—see Sec. 2.

Recommend a quality, easy to use waterproofing product.

Advise that wall surfaces be finished with cement plaster and treated with concrete paint of proven quality.

If basements have any tendency to be damp, suggest the use of drain tile and cinder under layment in basement floors—see Sec. 19, clay products and misc. items.

Girder supports—develop the required number and length from plan and place these on schedule.

Concrete for footings—if ready mix concrete is available, develop the required quantities for footing forms, gird supports, chimney footings, porch columns, trench walls.

Include suggestion for form lumber and braces.

Sell concrete for walks, garage floors, entrance platforms, porch floors, basement floors, and driveways (either strip or full width).

Analyze plan to find if re-enforcing rods or mesh, foundation bolts, anchors, are needed and how much or how many.

If exterior masonry walls appear on plan, develop amount of cement mortar, waterproofing, and finish materials needed and select items for customer which will combine to best advantage.

Become familiar with the available pre-mixed mortars—high early strength cements—white cements—color pigments (and their recommended proportions) also any available pre-colored cement water base or oil base wall and floor finishes—see Sec. 10.

Finally, help the customer to select the best products suited for his requirements and assist in developing the right amounts because to deliver one or two bags of cement or a small "jag" of sand is a nuisance from a delivery viewpoint and an over-supply is equally bother-

some to the customer and most certainly creates trouble when "returns for credit" occurs—because these materials are usually perishable and rarely, if ever, can they be resold.

Technical data for salesmen—For the salesman's use in arriving at the quantities of cement, sand, block, stone, gravel, etc., a Masonry Selection table No. 1 is given. This will facilitate writing orders for the required amounts of any of these quantity items.

The commonly accepted terms of measurement for these items are:

Sand or gravel or crushed stone—by the cubic yard or ton ("by the ton" is becoming more generally accepted as it lends itself to greater accuracy and simplifies loading and measuring of less than ton quantities).

Concrete by the cubic yard, cubic foot or square foot—commonly when sold in bulk the cubic yards is used and manufacturers of concrete use it as a unit price.

Cubic foot—this measurement is useful in estimating areas from plans such as walls, footings, porch foundations, walks, floors, trench walls, etc. Usually, the amounts of cubic feet are transposed into cubic yards by dividing the total by twenty-seven, which is the number of cubic feet in one cubic yard, and priced by the cubic yard.

Square feet—this method of estimating concrete is used for side wall plaster, concrete floors, or top coat and also walks. When used, interpolation of the correct factor is essential. See Table of Conversion Factors.

The end result of any plastic mortar, concrete, or plaster mix is not the same in volume as the volume of the elements used in making the mix.

Consequently, the salesman is confronted with two problems

1. of knowing how much of the elements fit together to provide the correct quantity of the finished mix —and
2. of knowing the custom with regard to packaging so that full bundles, bags, cubic yards, tons, square feet, or cubic feet may be written on a purchase order to effect two results
   (a) to provide the correct amounts written so that the shipping department can load in "standard" packages or amounts.
   (b) to avoid either ordering too much or too little and causing either shortage on the job, or the necessity for a "pick up," both of which are expensive.

Concrete tables for Dealer Salesmen—These tables are designed to aid the salesman in assisting his customer to place orders for the right amounts of material required for one cubic yard or 27 cubic feet of concrete.

Simple computation of plan areas will give total number of cu. yds. needed and simple multiplication will provide the answer for the whole job.

In this table we have resolved cement into bags instead of barrels—in decimals. By doing this, we may slightly exceed the actual amount of cement. However, no dealer can sell or deliver 1.11 bbls. of cement. It's much simpler to write 5 bags, which actually equals 1.25 bbls.

We have also given number of pounds, decimal parts of tons, number of cubic feet, and decimal parts of cubic yards so that either cubic yards or tons of sand, gravel, or stone can be computed.

In the table, sand and crushed stone are figured at 2500 pounds per cubic yard or about 21.6 cubic foot per ton, or about 92½ pounds per cubic foot. This, of course, may vary somewhat by reason of sand or stone being wet or dry, coarse or fine, but not seriously enough to appreciably affect the estimated quantities.

Gravel is figured at 3,000 pounds per cubic yard; 18 cubic feet per ton; or 111 pounds per cubic foot.

Cement, of course, is figured at 1 cubic foot per bag of approximately 94½ pounds.

In the Table No. I, the number of bags of cement is given as six or five depending on the mix. These amounts are developed for the smaller jobs and should be used for quantities up to 5 cubic yards.

For larger jobs, the table gives in decimals the barrels of cement, as 1.34 or 1.11, etc.

To find the amount or number of bags for a job in excess of 5 cubic yards multiply the number of cubic yards by the decimal barrel figure first to find the amount of barrels and then multiply this by 4 (the number of bags per barrel). Always use the next larger number of bags.

Estimating masonry quantities from plans—The most dependable and easiest method in taking off plans is in square feet or linear feet and by using the figured dimensions instead of scale.

After these totals have been arrived at, conversion into cubic feet, cubic yards, square yards, or tons is quite simple.

Likewise, by reference to Table No. I, once the totals have been established, the number of bags of cement, tons or cubic yards of sand, gravel, or crushed stone will be easily arrived at.

The required amounts of cement block or brick are also found in the same manner.

Estimating mortar quantities—Mortar is prepared on the job in two ways.

1. Mixing cement, sand, and hydrated lime together.
2. Using a prepared mortar mix to which sand only is added.

In case No. 1, to provide a good general purpose mortar for use either below or above grade, the proportions are

1 part cement—3 parts (by volume) sand—and 10% or 10 lbs. of hydrated lime per bag of cement.

TABLE I

Concrete with Gravel Aggregate per cu. yd.

Mix Ratio	(*) Cement bbls.	Cement bags	Sand No. lbs.	Sand Part tons	Sand Cu. ft.	Sand Part cu. yds.	Gravel No. lbs.	Gravel Part tons	Gravel Cu. ft.	Gravel Part cu. yds.
1-2-4	1.34	6.0	1025	.51	11.0	.41	2430	1.21	22	.81
1-3-5	1.03	5.0	1175	.59	13.0	.47	2340	1.17	21	.78
Local I										
" II										
" III										

Concrete with Stone Aggregate per cu. yd.

Mix Ratio	(*) Cement bbls.	Cement bags	Sand No. lbs.	Sand Part tons	Sand Cu. ft.	Sand Part cu. yds.	Stone No. lbs.	Stone Part tons	Stone Cu. ft.	Stone Part cu. yds.
1-2-4	1.46	6.0	1100	.55	12.0	.44	2230	1.11	24	.89
1-3-5	1.11	5.0	1275	.64	14.0	.51	2130	1.07	23	.85
Local I										
" II										
" III										

(*) To nearest larger number of bags.

In case No. 2, 3 parts of sand by volume are added to 1 bag of prepared mortar mix.

Cu. ft. of mortar required for 100 block

4" x 8" x 16" — ½" joint — 3 cu. ft.
8" x 8" x 16" — ½" joint — 4 cu. ft.
8" x 12" x 16" — ½" joint — 5 cu. ft.

Because mortar is usually not sold by the cubic foot, it becomes necessary for the salesman to arrive at quantities of material, which may be ordered to produce the desired number of cubic feet of mortar.

The most convenient unit is 1 bag of cement; and, in the 1-3-mix previously described, 1 bag of cement is mixed with 3 cubic feet of sand and 1/5 of one 50 pound bag of hydrated lime.

A positive method is to construct a hollow bottomless measuring box which measures—12" wide x 12" high x 12" deep. This when filled will equal 1 cubic foot. A mark or plate attached 1-3/16" up from the bottom side will provide the measure for 1/10 cubic foot of hydrated lime.

The resulting mix will amount to 3 cu. ft. and will provide mortar to lay

75—8" x 8" x 16" concrete block—or
60—8" x 12" x 16" concrete block—or
100—4" x 8" x 16" concrete block

Sand and lime—for each bag of cement 3 cubic feet or 1/9 cubic yard of sand are required. If sand is sold by the ton, then each bag of cement will require 275 pounds of sand and 10 pounds of lime.

To arrive at the quantities for a job, refer to the preceding examples of a two story house size 24' x 30'. This required approximately 788—8" x 8" x 16" block.

If 75 block require 1 bag then

750 block will require.....10 bags
balance can be laid with..... 1 bag

TOTAL .....11 bags

Sand—if 75 block require—3 cu. ft.
then 750 block require.....30 cu. ft.
for extra bag of cement (above) add 3 cu. ft.

TOTAL .....33 cu. ft.
TOTAL cu. yds. approx.....1¼ tons
If sold by the ton—
approx. 3,000 lbs.—or.....1½ tons

Plastering and dampproofing exterior walls built of concrete block, rubble stone and brick:—In dampproofing the exterior of basement walls, the usual cement plaster coat (with added or integral waterproofing) is applied from the lower edge of the footing course to approximately 2 inches above the finish grade line. For all general purposes 5 feet in height and ½-inch thick coat is considered ample. However, in some localities, when hydrostatic pressure prevails, it becomes necessary to supplement this treat-

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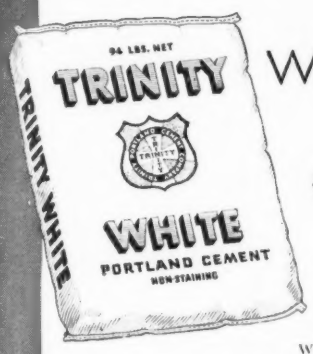


A whiter white cement that gives greater beauty wherever used...widely and consistently advertised to your customers.

Trinity Portland Cement Division,
General Portland Cement Company
111 W. Monroe St., Chicago; Republic Bank Bldg., Dallas; 816 West Fifth St., Los Angeles

as white as snow

ment with two additional water seepage preventives. They are—

1. Mastic, cold emulsion, or hot asphalt mopped on.
2. Installation of clay drain tile at base of footing course (see Clay Products Section 19).

However, in this section, the chief concern is to arrive at the proper quantities which the dealer's salesman can recommend to his customer.

The most simple measuring unit is the square foot; and, when the perimeter and the height are known, the total square feet are easily obtained.

How to convert square feet into bags of cement and cubic yards or tons of sand.

The coat of plaster will average ½ inch thick. It requires 4.17 cubic feet per 100 square feet of surface ½ inch thick.

By use of the same 1-3-(10 percent lime) mix as before described (with the addition of any appropriate waterproofing compound), we arrive at this simple formula.

1 bag of Portland cement
3 cu. ft. of sand
10 lbs. of hydrated lime
(waterproofing to fit directions)

This mix will result in 3 cubic feet of plaster mortar and it will cover at

¼" thick—144 sq. ft. .....second coats
½" thick— 72 sq. ft. .....regular coats
¾" thick— 48 sq. ft. .....brick work
1" thick— 36 sq. ft. .....rubble stone

The regular or ½ inch coat is most generally used.

The sample house, 24x30 feet, has an exterior perimeter of 108 lineal feet. It is usually safe to figure from the underside of footing to 2 inches above grade level; and, if this distance is 5 feet, this would give a total of 5x108 or 540 square feet and would require—if 1 bag of cement equals 72 square feet ½ inch thick then 540 square feet divided by 72 equals 7½ or 8 bags; if 3 cubic feet sand equal 72 square feet then 540 square feet require 540 divided by 72 multiplied by 3 or 22½ cubic feet. Order 1 cubic yard; or if sold by ton, 1 ton.

Hydrated lime requires 8/10 bag. Order 1 bag.

Interior plaster—The formulas for this work are the same except that the amounts are greater as the height is usually 7 feet. In this instance the INSIDE perimeter is approximately 105 feet x 7 feet high, which equals 735 square feet.

then to cover 720 square feet will require.10 bags
balance will require ..... 1 bag

TOTAL .....11 bags

If 1 bag of cement will cover 72 square feet
then 720 sq. ft. equals 10x3 or..... 30 cu. ft.
balance required for extra bag..... 3 cu. ft.

TOTAL ..... 33 cu. ft.

33 cu. ft. equals approximately 1¼ cu. yds.
or, if sold by the ton—approximately 3,000 lbs. or 1½ tons

Colors—of course can be added to meet the customer's wishes. The manufacturer usually instructs how many pounds or how much should be used per bag of cement or per cubic foot of mortar; and having both, it becomes simple to develop the correct quantities for him.

Conclusion of Sales Tips—In any event, it should be stressed to the customer and likewise become a firm conviction on part of the salesman that, if there is ONE PLACE in a construction project where the best quality is always the "cheapest"; where it pays to make the mixtures and plasters, etc., a little richer rather than poorer; where it is imperative to select only the best of its kind of product, it is in masonry—because that has to last.

If once, just a bag of cement is omitted from a mix, while it may not be noticed then trouble will follow; AND NOTHING the owner or builder can do will correct the condition; short of tearing it out and replacing it correctly. So insist on ordering generously. Don't try to "stretch" it.

Recommended practices for storing—Cement, lime, gypsum, and similar products should be stored in a dry, elevated warehouse.

If railroad siding is available, storage floor should be approximately four feet above track level to facilitate loading trucks and unloading cars.

Ceiling height should be 10 feet—two entrance doors, 4 feet wide—should be centered, face each other and provide passageway.

Floor space should be figured that each tier of bags will require 2 square feet and each bag will occupy approximately 1.25 cubic feet.

To store approximately 2,000 bags of various items, with bags piled 7 to 10 high and with a 1 foot to 18 inches clearance between piles and all exterior walls, will require a building about 22x24 feet or its equivalent.

In making deliveries to customers, always keep the stock pile fresh. Load the oldest shipments first because of the tendency for stored products to acquire "warehouse pack" which causes the bags to appear hard. Actually, the contents may be, and usually are, entirely sound and usable and "rolling" them prior to loading will restore them to their original state.

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Sources of supply for the items shown in Products Directory.

Sales Items:

( ) Air-entraining cement
( ) Bar reinforcement
( ) Calcium Chloride
( ) Cement Block
( ) Cement Brick
( ) Concrete Bolts
( ) Crushed Stone
( ) Expansion Joints
( ) Flagstone
( ) Form Ties and Accessories
( ) Gravel
( ) High-Early Strength Cement
( ) Lime
( ) Light Weight Aggregates
( ) Masonry Cement
( ) Mesh Reinforcement
( ) Mobile Machine-mixed Concrete
( ) Oil Base Paints and Enamels
( ) Portland Cement
( ) Pre-Mixed Cement
( ) Pre-Mixed Dry Concrete
( ) Pre-Mixed Mortar
( ) Ready mixed mortar
( ) Sand
( ) Vermiculite for Light Weight Aggregates
( ) Water mixed cement paints
( ) Waterproofing Agents

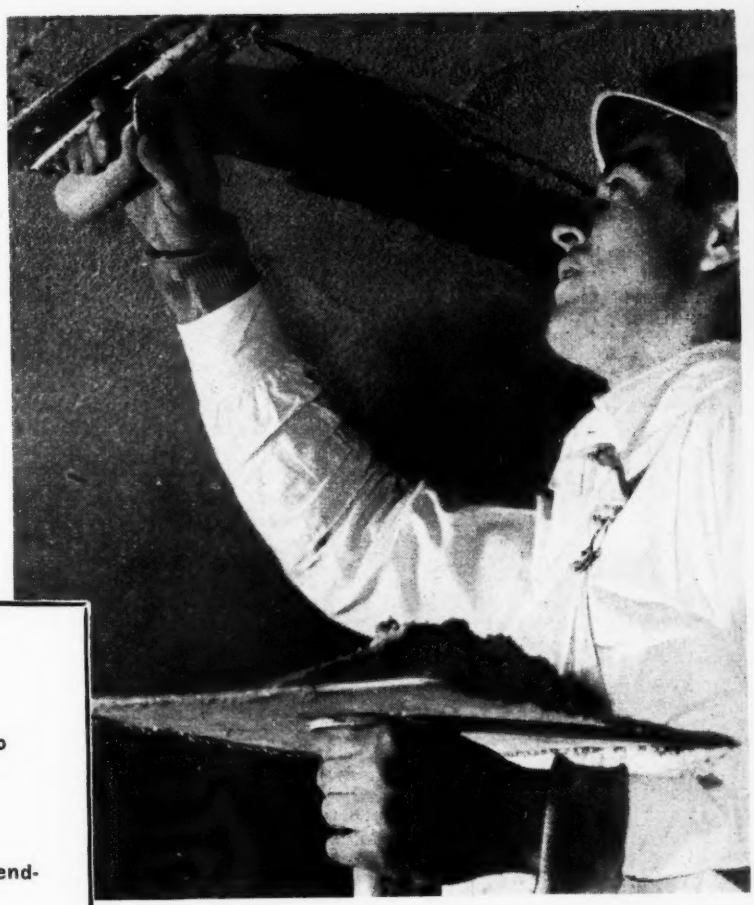
CONVERSION FACTORS

Footings per 10 lin. ft.	cu. ft.	Concrete floors per 100 sq. ft.	Approx. cu. ft.	Concrete Walls per 100 sq. ft.	Approx. cu. ft.
6"x12"	5.0	1" thick	8.3	4" thick	33.0
6"x16"	6.7	2" thick	17.0	6" "	50.0
8"x16"	8.9	3" thick	25.0	8" "	67.0
8"x20"	11.1	4" thick	33.0	10" "	83.0
8"x24"	13.3			12" "	100.0
				16" "	125.0
				20" "	166.0

For all other footings, figure cubic feet by using plan sizes.
To find square yards, divide square feet by 9.
To find cubic yards, divide cubic feet by 27.

Section 18

Plaster, & Plastering Products



CONTENTS OF THIS SECTION

Gypsum Plaster Board
Gypsum plaster-sanded-unsanded-fibered
Gypsum plaster finishes-hard-sand-textured-stucco
Gypsum Sheathing
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Cement plaster-cement stucco-sand finish
Cement texture finishes-white cement and colors
Cement over masonry-over plaster base-interior-exterior-waterproofing-decorating
Vermiculite Insulating Plaster Aggregate

For Related Sections See Master Index

Dealer's Function:

Because plaster, in its many aspects, forms such an important part in the building industry, it is highly essential for the retail lumber and building products dealer to accept plaster products and their related accessory items as a definite part of their merchandising structure; and having made this decision, to employ every effort to expand this department into a staple, controlled, profit unit.

This can be best accomplished by instructing the sales personnel to become familiar with the basic uses of the many products; their adaptability to the solution of the customer's problems, which often vary; and the sale of those essentially related items which, when incorporated in the job, will produce the best results and likewise contribute to a larger profit to the dealer.

Product description and development:

Plaster, as commonly understood, consists of a plastic mortar mixture applied as a surface treatment either to the interior or exterior.

There exists a sharp division between the two primary classes of plaster composition based on the cementing material and, because each of these two possess specific qualities which make their use for certain treatments mandatory, they will be treated individually in the following paragraphs.

One group of the cementing materials used is classified as gypsum or processed for various requirements in a large number of brand identifiable packages.

The other cementing material is portland cement which is likewise manufactured for various requirements and sold in innumerable brand identifiable packages.

There is a third cementing material used in plaster which, due to its physical properties and also due to the development in the processing of gypsum and portland cement, has declined in use in plastering and today is used primarily as a finishing material or an add mix with one of the other two cementing materials to improve plasticity in certain conditions.

Lime is available on the market either hydrated or quick, packaged or in bulk. It likewise is processed and packaged with many identifiable brand marks.

Space does not permit the inclusion of the historical development of either gypsum, portland cement, or lime. However, it can be most definitely stated that the continuous painstaking research conducted by the Industry Institutes as well as the individual technical laboratories maintained by the manufacturers has resulted in the production of an excellent group of building industry products which, if properly selected and used in accordance with either existing manufacturer's or American Standards Association "Standard Specifications for Gypsum Plastering Including Requirements for Lathing and Furring", A42-46, will provide lasting consumer satisfaction.

In plastering it is necessary to (a) have the plaster bond to the base, (b) cover all irregularities and secure a true and level surface, and (c) obtain a smooth, clean, hard surface that is pleasing in itself or can be further decorated with paint, enamel, calcimine, or wall paper. Wet, unset plaster is weak and so if applied in too thick coats will slide on the side walls and drop from the ceiling. Further, heavy coats give rise to shrinkage and drying problems. These considerations make so called two and three coat work necessary. Three coat work as the term implies means three separate coats. The first is called the scratch coat, the second the brown coat, and the third, the finish coat. In three coat work the scratch coat is allowed to set and become nearly dry before the brown coat is applied. Two coat work covers two general applications. It means two separate coats, a base coat which is allowed to set and nearly dry before the finish coat is applied and also covers a double back appli-

cation in which the brown (second) coat is applied before the scratch (first) coat has set and therefore are considered as one. The finish (final) coat is applied after this double back application has set and is nearly dry. The scratch coat's primary purpose is to bond to the plaster base providing a good base for the succeeding work. The brown coat having a good base in the scratch coat is inserted to build up the surface making it true and level. The finish coat provides a pleasing surface of good wearing qualities. Base coat plasters used for scratch and brown coats include neat gypsum, fibered and unfibered, ready-sanded gypsum plasters, wood-fiber gypsum plaster, and bond plaster.

Neat gypsum plaster is the most common form and is generally sold and spoken of by the trade as "Cement Plaster." Gypsum plaster gave a harder surface than lime plaster giving rise to another name for this material—"hardwall" plaster. It is mill retarded and normally sets in three to six hours when mixed with sand and water on the job. In the past all plaster was fibered, having animal hair in it. This fibering helped the workability slightly, but of more importance, increased the cohesiveness of the material helping to maintain the keys until the plaster set, particularly when the plaster was applied over open mesh lath. Fibering was essential in lime plaster which took weeks to harden. With the faster setting gypsum plaster fibering is not so essential. However, specifications vary on this point and many architects still call for fibered plaster, so the manufacturers furnish either fibered or unfibered plaster. Because of the open mesh, fibered plaster is always recommended for the scratch coat on metal lath. Originally fiber was made from cow or other animal hair. Experience has proved sisal or rope fiber equal to animal hair; as sisal is more abundant and more uniform, it has become standard. The fibers are shredded before mixing with the plaster and are about 1½ inches long. It is mixed very thoroughly at the plant and there is little or no danger of the balls of fiber that were a source of annoyance to plasterers in the past.

Ready sanded gypsum plaster is produced in the mill requiring only the addition of mixing water in the field. Carefully dried sand of good quality is mixed in the required proportion with neat gypsum plaster and retarder at the mill and bagged. Ready sanded plaster is desirable where sand is scarce or of very poor quality or for use winter weather when said is often frozen. Practically speaking it is the same material as cement plaster with the aggregate added at the factory.

Wood is added to plaster of paris in different forms depending on the proposed use. In making gypsum board about three percent sawdust is frequently added as a filler. As chips, wood is added to make gypsum fiber concrete, a structural material used on the job with the addition of water only. This material is normally used in roof and floor construction for so-called "poured-in-place" gypsum concrete and contains 12½ percent wood particles.

Wood fiber gypsum plaster is a specially prepared gypsum plaster containing not less than 1 percent of a fine non-staining wood fiber. It is designed for use without an aggregate and provides a high class plastering job, stronger and tougher and less likely to crack than sanded plaster. It makes a lighter material to apply and is frequently used in remodeling and repair jobs. On masonry bases because of the suction, sand is sometimes mixed with wood fiber gypsum plaster in the proportions of one part of plaster to one part of sand by weight for the first coat.

For applying plaster directly to concrete surfaces a bond plaster is available capable of forming a strong bond on concrete to which regular gypsum will not adhere. This is accomplished by special admixes and specialized formulation at the mill.

Plasters designed for finish coat work include gauging plasters, gypsum prepared finishes, Keene's cement, acoustical plasters and moulding plasters.

Gauging plasters are designed for use with lime putty on the job and may be slow set or fast set as desired. The most common finish usually referred to as the "white" coat is one part gypsum gauging plaster to three parts lime putty by volume. This is applied in a very thin coat frequently specified as ⅛ inch thick. The lime gives the material whiteness, plasticity, and long working properties. The gypsum by setting gives a hard surface quickly and counteracts the shrinkage in the lime. Fast setting gauging plaster is normally a finely ground, high purity, gypsum plaster with no retarder or accelerator. Slow setting gauging plaster has had a mill mixed retarder in the gypsum plaster of paris.

Gypsum prepared (trowel) finishes are mill mixed, finely ground and contain other materials to provide proper workability and application properties. Only water is added on the job for use and the finishes may be obtained in several colors as well as white. It can be steel trowel finished for a smooth finish or sand floated. Gypsum, due to its setting characteristics cannot be trowelled indefinitely.

Keene's cement is made from artificial insoluble anhydrite by burning gypsum rock to a high temperature (1000° to 1500° F.) grinding and acclerating. High temperature calcination removes all water of crystallization converting gypsum into the insoluble anhydrite, $CaSO_4$, chemically identical with the mineral anhydrite which frequently occurs in gypsum deposits. Insoluble anhydrite sets very slowly with water (may require months or years) but by fine grinding and with the addition of acceleratures (usually alum) it will set in the same manner as hemihydrate plasters ($2CaSO_4.H_2O$). Keene's cement may be used alone or with lime putty mixed in the proportions of three parts Keene's cement to one part lime putty by volume and when heavily trowelled produces a very hard, dense surface. Scagliola (artificial marble), artificial travertine finishes, etc., are usually made from Keene's cement. Such finishes are highly polished.

Acoustical plaster is a special gypsum plaster which when properly mixed and applied has the faculty of absorbing sound within a room thus reducing sound reverberations. All such plaster is made by patented processes and contains a light weight porous material as a filler plus a small amount of some chemical that creates air voids in the finished product which entrap the sound waves. In the past a successful job depended to a major degree upon the plasterer's skill in application and the acoustical properties of ceilings were ruined by excessive trowelling which made a dense solid surface. Present manufacturing processes have reduced this hazard so that the successful application of the acoustical material today is almost as easy as that of other good finishes.

Moulding plaster is a high purity finely ground plaster generally of much faster set (25 to 40 minutes) than the other plasters described. It is designed for general casting work and is often employed for cornices, run work, and staff or in ornamental plastering. Its high strength, good white color and uniformity are of importance in such applications.

Retarders and accelerators—Manufacturers have also developed chemical compounds, which, when added to the gypsum plaster, will either retard the time of setting or hasten it according to the requirements of the job.

Plaster Support or "Plaster Base"

This highly important part of a good plaster job has been, by custom, expediency, economy, zone regulations, availability, and functional purpose, divided into these broad classifications, as follows:

1. Wood lath or woven reed (primarily in foreign use)
2. Metal lath—expanded or welded wire fabric
3. Gypsum lath, plain, perforated or insulating
4. Fibre insulation lath
5. Masonry—brick, stone, hollow tile, cement block, gysum tile
6. Concrete.

Of these, Masonry plaster bases are the oldest examples dating back as much as four thousand years.

Woven reeds, using iron wire to connect the reed and fabricated into rolls, are still widely employed in middle Europe and parts of South America.

Wood lath is or was primarily prevalent in North America. The abundance and low cost of lumber made it an economic and durable plaster support.

With the rapidly increasing use of lumber for other more profitable applications, two substitutions or replacements as plaster support made appearance; i.e., gypsum lath and an expanded metal or wire fabric.

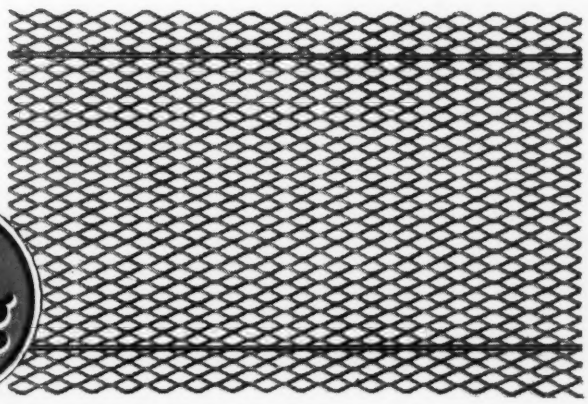
Gypsum lath and metal lath presently predominate the market due to product development and also the fact that the material is fire resistant and hence specified under

"Sure, and if it's fine Lath you're wantin', ...try Wheeling BAR-X-LATH"

IT'S the top of the mornin' when a plasterer starts to work on that good Wheeling BAR-X-LATH.

He likes the way it stands up to his trowel. It *can't* crush. Because four sets of solid rods are welded in pairs right through the mesh to provide "stiff beam" reinforcement. It's no wonder Wheeling BAR-X-LATH does an easier, solider job.

Stock Wheeling BAR-X-LATH and recommend it to your customers. It will pay off in profitable repeat business.



W Wheeling CORRUGATING COMPANY

WHEELING CORRUGATING COMPANY • WHEELING • WEST VIRGINIA

Atlanta • Boston • Buffalo • Chicago • Cleveland • Columbus • Detroit • Kansas City • Louisville • Minneapolis • New Orleans • New York • Philadelphia • Pittsburgh • Richmond • St. Louis

certain restrictions. The use of wood lath, due to a combination of many factors, is fast disappearing.

The gypsum industry has developed a most useful unit in gypsum lath—economic, highly fire resistant, ease in application on interior surfaces, engineered size to minimize cutting waste, rigidity to a degree that reinforces the structural strength of the wall or ceiling to which it is applied, excellent bonding qualities with gypsum plaster but require refinements. The application of a metal foil to plain gypsum lath makes an excellent vapor sealed barrier and heat insulating unit.

Another most efficient structural unit which, when erected, provides both a rigid partition and an excellent plaster support is "Gypsum Tile" or "Gypsum Block." This unfinished unit is manufactured in various sizes and comes either solid or hollow. When employed in the division of areas in loft, commercial institutional, apartment, and hotel structures, it affords a most elastic and flexible means towards convenient floor space distribution. Light in weight, highly fire resistant and simple to erect (it is easily cut and fitted), it results in an ideal plaster support and likewise combines the elements of low initial cost; the features of temporary expediency or of permanency. Because of these many desirable qualities, it is widely used in the industrial and commercial field.

Metal lath manufacturers have made tremendous strides in the manufacture of expanded metal lath in various weights, mesh design, stiffening ribs, galvanized and enameled coatings, each of which types are "tailored" to serve a specific purpose. Many are adapted for structural re-inforcement and serve as forms. Others lend themselves to arches and other circular and radial treatments.

In addition, industry has developed standard units, which serve to ease the wear and tear on plastered areas, such as corner beads, picture mold insert strips, corner reinforcements and flat strip sections which serve to strengthen the resistance to corner and surface cracks where either wood lath or gypsum lath is employed as the main plaster support. Grounds or scruds, numerous clips and ingenious fasteners for application of metal lath to metal framing members are available.

The industry has also developed wire lath which is stitched to a backing membrane of highly absorbent fiber and permits of wider spacing of the reinforcing wire by reason of the backing membrane and consequent economy. When the spacing of the wire is small the lath is properly called wire fabric and no backing membrane is required for use of this type lath.

Proven Methods of Handling this Merchandise

Because of their common affinity for water and the resultant deterioration of the product, gypsum, portland cement, and lime (either hydrated or quick) should be stored where it is possible to keep them dry; and, if possible, protected by suitable enclosures to resist dampness.

Manufacturers have greatly contributed to minimizing the spoilage of these materials by using an improved container which is water repellent to varying degrees.

Nevertheless, appropriate precautions should be taken by the retail dealer to minimize inventory shrinkage by elevating the storage floors to at least truck platform level. This arrangement will serve a two-fold purpose, i.e., keep the merchandise dry and provide for easy loading.

As these materials are bulky and heavy and are purchased in carload lots, ease of unloading and storing is also a desirable feature; and it is strongly recommended that the warehouse or storage space be located close to the siding or track (if any) in order to effect the most convenient manner of stock transfer from the car to the warehouse.

Gypsum plaster board or gypsum lath is efficiently bundled by the manufacturer. Usually it is furnished in paper taped units of six sheets 16x48"; and is, therefore, simple to handle, store, load, and use on the job. It, too, should be stored in a reasonably dry place but it does not have the same susceptibilty to dampness as the cementaceous products.

Wire lath is supplied by the manufacturer, in sheets either 24"x96" or 27"x96" and in bundles of ten sheets. It presents no serious storage problem except that the different gauges, weights, and finishes should be placed in separate piles—laid flat.

Corner beads and related accessories preferably should be "stood on end" to afford quick access and selection.

Sand—one of the highly necessary parts of plastering (either with gypsum or cement) should be (if siding facilities and yard space permits) stored in an elevated bin—similar to a "silo" to afford easy loading; otherwise, a belt conveyor or similar labor saving device should be employed.

Under normal conditions, only two kinds of sand will be required; one the regular or "builder's" sand; the other, "white" or "beach" sand. The latter, which is only used for sand finish or decorative stucco, is best merchandized in bags.

If sand, as such, is a problem either from a storage, truckage, or source viewpoint, many retail dealers divert these orders to someone who has specialized in the sand and gravel supply business. The dealer, however, controls the sale and realizes his operating profit just as he would if he carried sand in stock.

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

Minimum Stocks (for Plaster only)

In this instance, a great deal depends on the retail dealer's proximity to his service distributor. However, it would seem reasonable to set the minimum quantities for three six room average size homes. This would entail approximately

( ) Sand .....16 to 20 tons
( ) Gypsum (unsanded), 140 bags or.. 7 tons
( ) Hydrated Lime, 80 bags or..... 2 tons
( ) Gauging Plaster, 20 bags or..... 1 ton

(The above quantities are based on approximately 550 sq. yds. per home.)

In addition, it will require minimum stocks of

( ) Gypsum or "rock" lath..... 450 bundles
( ) Corner re-enforcement ..... 2000 ft.
( ) Corner beads ..... 1000 ft.
( ) Expanded metal lath ..... 20 bundles
( ) Portland cement ..... 20 bags
( ) White portland cement ..... 12 bags

If wood lath are carried in stock, the amount required is approximately 250 bundles.

Nails

( ) 3 kegs each of "Blue Plaster Board" or "Sheet Rock Nails" (these are also used by lathers when applying metal lath).
( ) 3 kegs of 3d fine—"blued" lath nails for wood lath.

Miscellaneous

( ) 3 packages of "retarder" for delaying setting time of white finish coat.
( ) 6—100 lb. bags of asbestos fiber cement for finishing boilers where jackets are not available; also around fittings in steam or hot water lines where molded pipe covering does not serve.
( ) 20—1 gal. cans of liquid, or its equivalent in a powdered waterproofing compound to be used to fortify cement plaster against dampness.

Sales "Tips" for Salesmen

On a new house job, for interiors, assist the customer in estimating the amount of material he will require to finish the job, as follows:

1. The amount of plaster support or "plaster base"—this can conveniently be determined by checking the plan for room, closet, hall, and stairway dimensions and by placing these in a column on a sheet and converting the dimensions into square feet or square yards by reference to the tables provided—(refer to typical example on Table No. 1).

2. Help the customer to select the most appropriate plaster support—this should preferably be the one the firm carries in stock, account of expediting delivery to the job.

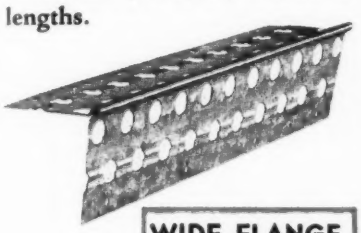
The quantities of either wood, gypsum, or metal lath will be about the same in square feet; yet, because of the variances in surface content of the packages themselves and because the orders are usually prepared to list bundles

(Continued on Page 362)

Bostwick METAL LATH ACCESSORIES

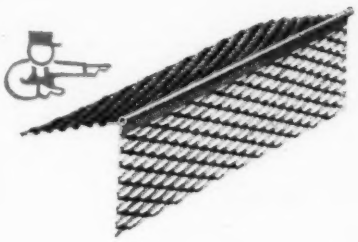
BULL-NOSE BEAD

Provides a strong, rounded corner with true radius. Furnished in 7, 8, 9, 10, and 12 ft. lengths.



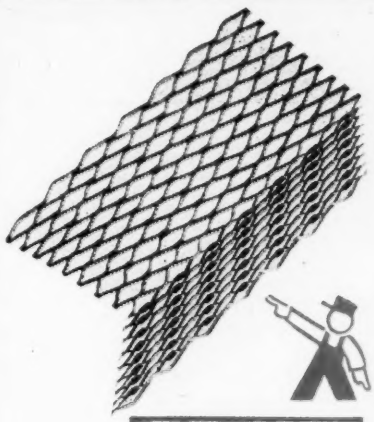
WIDE FLANGE BEAD

With wings 2½" wide, it provides exceptional rigidity and facilitates erection on masonry corners. Lengths 8, 9, 10, and 12 ft.



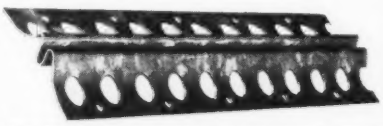
EXPANDED WING CORNER BEAD

Expanded bead, preferred by many craftsmen, has wings 2½" wide, smooth true nose, and offers extra reinforcement for plaster with its diamond mesh type wings. Furnished 8', 9', 10', and 12' lengths and packed in strong cartons or crates.



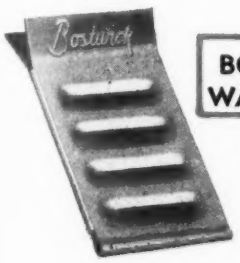
SMOOTH EDGE CORNERITE

Used for inside corners over any plaster base, it prevents plaster cracks. Having smooth edges, it is easy for plasterers, lathers, and dealers to handle. Furnished in 2" x 2" x 96" and 3" x 3" x 96", packed in 400' bundles.



CONCEALED PICTURE MOLDING

Concealed in plaster . . . only straight line of picture slot can be seen. Used in formal rooms, studios, and galleries. Made in 10' lengths, 500' per crate.

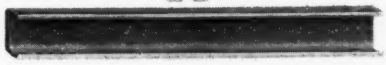


BOSTWICK WALL PLUG

Made of corrosion resisting galvanized steel, a positive nail grip in masonry walls. 2⅞" long, 2¼" wide, 250 pieces per carton.

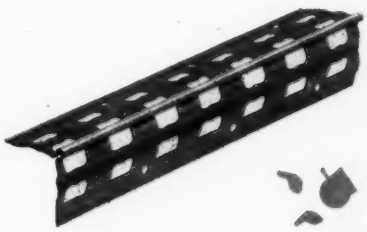
METAL BASE BEAD

Provides a screed between plaster and base . . . made for ½" ground, it can be shimmed out to any depth of ground. Length 10', crated 500' per crate.



COLD ROLLED STEEL CHANNELS

Made of hot rolled strip steel and cold formed . . . it has ½" legs . . . it is true and square. ¾" and 1½" sizes in 16' and 20' lengths. ¾" tied 20 pieces per bundle . . . 1½" tied 10 pieces per bundle.



TRUSS-WING CORNER BEAD

For years Truss-Wing Bead has been an outstanding dealer favorite because (1) it is best for arches and straight work (2) it is suitable for any depth of ground (3) it is adaptable to the use of corner bead clips where wider nailing is required (4) is packed in a strong carton which keeps the bead in good shape while in transit and in stock. Furnished in 8', 9', 10', and 12' lengths.

THE BOSTWICK STEEL LATH COMPANY
NILES, OHIO

(Continued from Page 358)

or packages or sheets, the conversion Table No. II has been provided for the salesman's use.

It has been developed to help him find the quantities to the nearest larger bundle, package, or number of sheets.

By reference to the typical example of a dwelling showing how dimensions were "taken off" on Table No. 1 and by reference to conversion Table No. II, we discover that this house, which figures 5,769 sq. ft. or 641 sq. yds., requires

90 bundles of *wood lath or
184 packages of *"rock" lath or
321 sheets of *metal lath or
184 sheets of insulating board lath or
642 yds. of *welded wire fabric

3. After arriving at the quantities of plaster support or plaster base—the next point to consider is the amount of corner bead and expanded metal reinforcement.

In the typical house, which figures 5,769 sq. ft. or 641

TABLE I

Example of Two Story Six Room Dwelling
Foundation size 24'0"x30'0"
Typical Plaster Quantity Take Off

Floor	Name of room	Size	Ceiling Height	Sq. Yds.	No. of Bundles Wood	Gypsum	Metal
1st	Living room	14'x18'	8.6"	88.4			
	Dining room	14'x12'	8'6"	67.7			
	Kitchen	10'x11'	8'6"	51.8			
	Lavatory	5'x6'	8'6"	24.1			
	Hall	4'x6'	8'6"	21.5			
	Entrance	6'x7'	8'6"	29.2			
	Stairwell	3'x9'	8'6"	25.6			
	Closets	3'x6'	8'6"	19.0			
	Total 1st floor—			327.3	46.0	94	16.4
2nd	Bedroom 1	13'x14'	8'0"	68.2			
	Bedroom 2	13'x15'	8'0"	71.4			
	Bedroom 3	10'x10'	8'0"	46.6			
	Bath	7'x6'	8'0"	27.7			
	Hall	3'x14'	8'0"	34.8			
	Closets (2)	3'x10'	8'0"	26.4			
	Closet (1)	4'x6'	8'0"	20.4			
	Closet (1)	3'x6'	8'0"	18.0			
	Total 2nd floor—			313.5	44.0	90	15.6
	Total 1st and 2nd floor—			641.	90.0	184	32.0
	Basement (clg. only)	24'x30'		80.0	12.0	23	4.0

TABLE II

To convert plaster support or plaster "base" to nearest unit—as customarily packaged—for *100 sq. yds. and also *100 sq. ft.

— BASIS —

Name	No. pcs. per bundle	Size of unit	Bundle will cover *sq. yds.	sq. ft.
Wood lath	100	1⅝"x48"	7.1	64
Gypsum or "rock" lath	6	16"x48"	3.5	32
**Expanded metal lath	10	27"x96"	20.0	180
**Expanded metal lath	(per sheet)	27"x96"	2.0	18

— INSTRUCTIONS —

1. Enter room sizes in column—(as shown on Table No. 1).
2. Select table for ceiling height, which applies from sq. yd. Tables on pages 000—and place number of sq. yds. in column as shown.
3. Arrive at total sq. yds. by adding this column.
4. Divide total sq. yds. by number of sq. yds. contained in each bundle to find total bundles required.
5. Always figure to next larger number of bundles when arriving at totals.
6. To convert to sq. ft. divide sq. yds. by 9.

*Custom varies considerably. Many figure plaster per square yard while others compute in square feet.
**In many cases, where limited amounts of metal lath are required, dealer may furnish number of sheets needed for a special application.

sq. yds. of wall and ceiling surface, examination indicates that 13—8′ lengths of metal exterior corner bead, and 102—8′ lengths of interior corner and angle reinforcement are required. With conservative allowance for cutting waste, a safe estimate per 100 sq. yds. of surface in an average house would appear to be—exterior corner bead, 2 pcs. 8′ 0″, interior angle and corner reinforcement, 15 pcs. 8′ 0″ for a basement ceiling add 80 sq. yds. or 720 sq. ft.

4. **The next step is to determine** whether or not the customer is being offered the best material for his requirements. For example, if the plans provide for tile walls or floors in bathrooms, lavatories, kitchens, entries, etc., metal lath is a definite requisite for those areas even if the customer selects any other plaster support for the balance. Also, when use as the foundation for tile application, portland cement mortar should be used for the "scratch" coat because tile is usually set with a cement and lime mortar and the bond between gypsum base and portland cement plaster presents difficulties.

5. **Likewise,** any exterior plaster work should have a metal lath plaster support and be finished with portland cement mortar or its equivalent offered under various trade names in prepared form; all of which have the fundamental properties of portland cement with admixtures which tend to improve plasticity and workability.

6. **Having arrived at the kind** of plaster support or "base", the next step is to develop the kind and quantity of plaster for the rough coat and then for the finish coat.

These kinds and quantities differ on account of the nature of the surfaces to which they are applied.

Wood lath, for example, will require a little more plaster volume than gypsum lath for the same area.

Expanded metal lath will require more than either wood or gypsum plaster support.

Some can well be used with a "neat" plaster sanded according to manufacturer's directions on the job; others require a fibered, either wood or vegetable (or in some cases goat hair) fiber.

To aid in arriving at quantities for rough coat, Table No. III is given. Inspection will show

1. What amount of material is required for a unit area of 100 sq. yds. or 100 sq. ft. over any of the plaster supports.
2. What kind should be used for the base selected.
3. What amount and kind of material is required for the various finish treatments.

TO ILLUSTRATE USE OF TABLE III, THE SAME TYPICAL DWELLING WAS SELECTED AND THE REQUIRED AMOUNTS were taken from Tables I and II.

Illustrating the use or application or Table III to find the amounts of rough coat plaster and sand for the typical 24′x30′ two story dwelling.

On Table I, we find the total wall and ceiling area (exclusive of basement or attic) to amount to—641 square yards—by conversion to the quantities shown on Table III, we find the following *average requirements:

1. **For wood lath**—*9 to 11 bags per 100 sq. yds.—order 64 bags—sanded 2 to 1 equals 64x2 or 128 cu. ft. or approximately 4¾ cu. yds.—or—5.83 tons—order either 5 cu. yds. or 6 tons of sand.
2. **For gypsum lath**—*8 to 9 bags per 100 sq. yds.—order 55 bags—sanded 2 to 1—55x2 or 110 cu. ft. or approximately 4.1 cu. yds. or 4.4 tons—order either 4½ cu. yds. or 5 tons of sand.
   *The "mean" amount has been used; i.e., 9 to 11, 10 etc.
3. **For expanded metal lath**—17 to 20 bags (for two coats ⅞″ grounds)—18 bag average—or—115 bags—sand required 2½ to 1 (average 1st and 2nd coat) or 288 cu. ft.—or—10.7 cu. yds.—or 13.4

TABLE III
INTERIOR PLASTERING

Material Quantities per 100 sq. yds. or per 100 sq. ft. "Rough" or "Scratch Coat" on Plaster Base

Kinds of Rough Plaster—per 100 sq. yds.

Plaster Base with ¾" to ⅞" grounds	"Neat" or fibered Gypsum (100 lb.) bags	Parts sand to add by volume 1 bag equals 1 cu. ft.	Wood Fibered Gypsum No. Bags	Pre-sanded Gypsum No. Bags
Wood Lath *one coat operation	9 to 11	2 to 1	14 to 17	22 to 24
Gypsum Lath *one coat operation	8 to 9	2 to 1	13 to 16	20 to 22
**Expanded Metal 1st coat		2 to 1		
2nd coat	17 to 20	3 to 1	22 to 27	47 to 50
**Woven Wire Fabric 1st coat		2 to 1		
2nd coat	17 to 20	3 to 1	22 to 27	47 to 50
Gypsum Tile	10 to 12	3 to 1	14 to 16	25 to 28

***Finish Coat Material per 100 sq. yds.

	Plaster of Paris	Hydrated Lime	"No lime" finish
White Hard Finish	2—50 lb. bags	6—50 lb. bags	
Sand Finish	2—100 lb. bags	4 cu. ft.	8 bags
"No Lime" Finish	("neat")	sand	

*Actually, rough coat is applied by "doubling back" (only one scaffold).
**On metal base "scratch" coat must set ere 2nd coat can be applied and usually requires two separate operations.
***The amount of finish coat material will be the same whichever plaster base and rough coat is used.

tons—order 11 cu. yds. or 14 tons.

4. **For welded wire fabric**—the same as above.
5. **For gypsum tile**—10 to 12—11 bag average or 70 bags sand at 3 to 1—210 cu. ft. or approximately 7.8 cu. yds. or 9.5 tons—order 8 cu. yds. or 10 tons of sand.

For white "hard finish"—(plaster of paris and hydrated lime putty) for 641 yds. (on any of the above rough coats) —order 2x6.41 or approx. 13—50 lb. bags of plaster; 6x6.41 or approx. 39—50 lb. bags of hydrated lime.

For sand finish—order 6.41x2—or 13—100 lb. bags of "neat" unfibered gypsum plaster—and—6.41x4—25.64 cu. ft. of sand—order 1 cu. yd. sand or 1¼ tons of sand.

ANY other size house can be figured in the same manner—by transposing the square yards as illustrated in Tables I and II to the quantities required per 100 square yards as given in Table III.

These quantities are based on average job conditions and fairly standard "ground" thicknesses.

Their main purpose is to convert pounds, tons, cubic yards, cubic feet, square feet, and square yards INTO UNITS WHICH THE DEALER OR HIS SALESMAN can write orders for—with confidence.

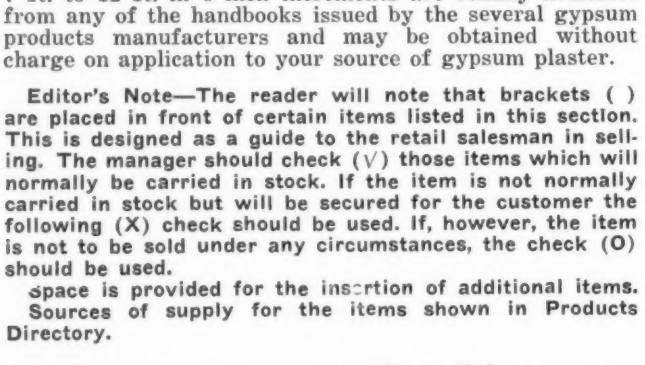
Square yard tables for any size room from 3x3 ft. to 22x24 ft. in 1 foot increments and in ceiling heights from 7 ft. to 12 ft. in 6 inch increments are readily available from any of the handbooks issued by the several gypsum products manufacturers and may be obtained without charge on application to your source of gypsum plaster.

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items. Sources of supply for the items shown in Products Directory.

Sales Items:

( ) Board Plaster Base
( ) Builders Sand
( ) Cement Colors
( ) Gauging Plaster
( ) Gypsum Lath
( ) Gypsum Plaster
( ) Hydrated Lime
( ) Insulating Lath
( ) Keenes Cement
( ) Lathers Accessories
( ) Metal Lath
( ) Mortar Colors
( ) Plaster Colors
( ) Plaster of Paris
( ) Plasterer's Tools & Accessories
( ) Quick Lime
( ) Gypsum Board Sheathing
( ) Vermiculite Aggregate
( ) Waterproofing Compounds
( ) Welded Wire Fabric
( ) White Portland Cement
( ) White Sand
( ) Wood Lath



APPLICATION COUNSEL

PLASTER BOARD

Framing

Framing of all studs and joists shall be 16 in. on center, unless for bearing partitions which are 12 in. on center, and shall follow general good practice.

Headers of 2 x 4 in. shall be provided in ceilings and wherever else required to provide nailing for all ends of Wallboard...also between studs for baseboards, wainscot, or other finish, and for furring to take wood beams, cornices, etc.

For old plaster ceilings, nail 1 x 2 in. furring strips over the plaster, to provide proper nailing for ends and intermediate support of boards, using 8d nails.

Nails for ¼ in. and ⅜ in. board shall be 4d, 14 gauge, cement coated, flat head nails, 1⅜ in. long. For ½ in. board, 5d, 13½ gauge, cement coated, flat head nails 1⅝ in. long.

Allow 10 lbs. nails per 1,000 square feet.

Handling and Preparation

Receiving Material—Wallboard shall be piled flat on floors with reverse side up except first board which shall be turned down. Note: Wallboard shall not be delivered on the job until doors and windows are in place.

Sawing and Cutting—All required cutting of wallboard shall be done with a saw unless joints will be covered by trim. Sawing shall be done with sharp handsaw with back of board placed down and supported close to sawed edge. Other cuts may be made by scoring with sharp edge of hatchet or chisel and breaking over straight edge. Bevel the face side of cut edges and mill cut end with coarse sand paper so that no rough paper edges remain, unless covered by trim. Recut the ends of all wallboards which have been damaged by handling.

Application

Inspection — Before applying wallboard see that all edges and ends are perfect and all ends and cut edges are face beveled and that faces of boards are undamaged.

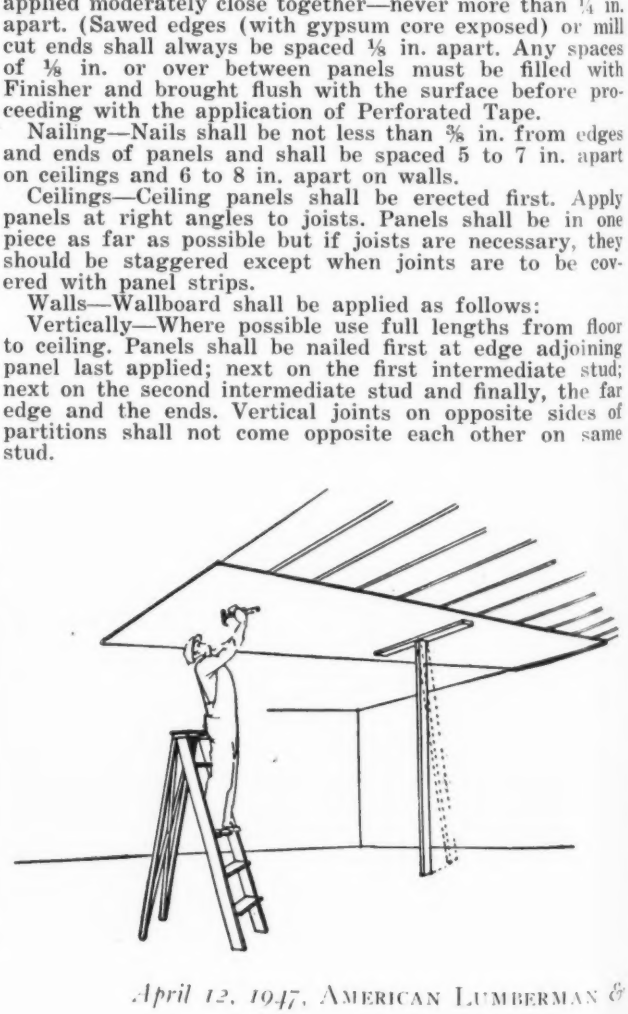
Wallboard shall be applied with back toward studs and nailed directly to studs and joists. Where necessary, use headers to provide a solid nailing surface behind the four edges of every panel. Panels with closed edges shall be applied moderately close together—never more than ¼ in. apart. (Sawed edges (with gypsum core exposed) or mill cut ends shall always be spaced ⅛ in. apart. Any spaces of ⅛ in. or over between panels must be filled with Finisher and brought flush with the surface before proceeding with the application of Perforated Tape.

Nailing—Nails shall be not less than ⅜ in. from edges and ends of panels and shall be spaced 5 to 7 in. apart on ceilings and 6 to 8 in. apart on walls.

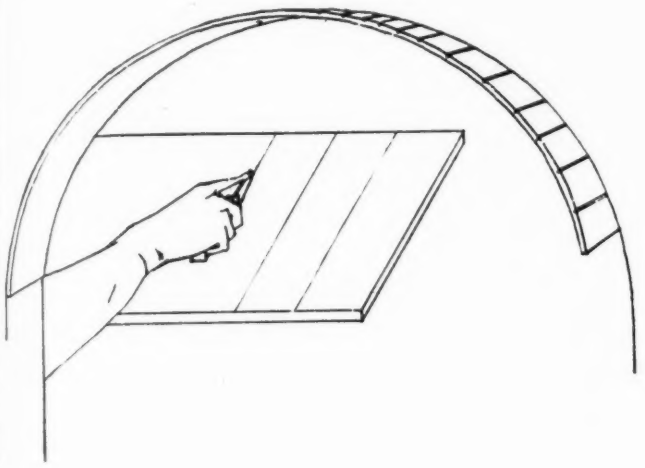
Ceilings—Ceiling panels shall be erected first. Apply panels at right angles to joists. Panels shall be in one piece as far as possible but if joists are necessary, they should be staggered except when joints are to be covered with panel strips.

Walls—Wallboard shall be applied as follows:

Vertically—Where possible use full lengths from floor to ceiling. Panels shall be nailed first at edge adjoining panel last applied; next on the first intermediate stud; next on the second intermediate stud and finally, the far edge and the ends. Vertical joints on opposite sides of partitions shall not come opposite each other on same stud.



Horizontally—Use full length panels that will keep the number of end joints to a minimum. Where possible, full length panels shall extend above and below openings of "piecing".



Ceiling Application—Nail a cleat on studs about ⅝ in. below ceiling. Insert end of panel above cleat and gradually force the T into place to support board while nailing.

Covering Arches—Cut a piece of board to the width of arch. Score back of board as shown in sketch, keeping the face of panel unmarred. Gently bend board and fit into arch.

Specification for the Erection of Water-Repellent Gypsum Sheathing.

All exterior walls specified to be sheathed shall have water-repellent gypsum sheathing nailed to the studding with 1¾" long, 11 gage, galvanized, barbed 7/16" diameter head roofing nails spaced ⅜" from edges and ends of sheathing and located along each support as follows:

Type of Exterior Finish	Spacing of Nails
Wood Siding.	8"
Stucco.	4"
Asbestos-cement, wood or slate shingles applied over wood furrings spaced over 8" on centers.	
Brick Veneer.	
Asbestos-cement, wood or slate shingles applied over wood furrings spaced over 8" on centers.	
Asbestos-cement shingles or siding attached directly to the sheathing with special fasteners.	

Gypsum sheathing shall be ½" in thickness, 24" in width, and 6'-8" or 8'-0" in length.

Apply gypsum sheathing direct to wood studding with the long dimension across the studs and with the groove

PLASTER TROUBLES AFTER APPLICATION

IF PLASTERED WALL IS:	THE TROUBLE IS:	REMEDY:	TO PREVENT TROUBLE IN FUTURE:
Soft, white, chalky particularly over openings. Hot weather condition.	"Dry Out." Plaster dried before setting.	Spray walls with clean water. Keep wet till set.	Screen openings. Wet lath and floors. Avoid thin coats. If plaster slow set use accelerator.
Damp. Soft. Winter condition.	"Sweat Out." Plaster holds water and "rots."	After plaster is set open doors and windows. Supply heat.	Allow ventilation to hasten drying after plaster is set. Supply artificial heat in cold weather.
Soft, resembling sweat out—rooms have been at freezing temperature.	Walls are frozen.	Throw open building. Let walls freeze dry.	Keep walls from freezing until plaster is dry or at least 24 hours.
Soft, not due slow set or hot weather or retempering plaster.	(1) Too much sand. (2) Too fine sand.	None.	(1) Measure sand accurately. Do not use over 3 parts by weight. (2) Use other sand.
Wood lath. Cracks or bulges horizontal with lath. Straight vertical cracks.	Due swelling poor grade of lath or improperly spaced or failure to wet down. Failure stagger joints.	Remove and replaster.	Use No. 1 lath, white pine, cypress or spruce free from bark, sap, or knots. Space ¼" to ⅜" apart. Stagger. Wet lath before plastering.
Gypsum lath. Cracks around joints.	Too thin coat.	Apply second coat.	Use proper grounds.
Metal lath. Sags, cracks, does not adhere.	Too light lath, too open spaces, plaster not double fibered. Plaster over sanded.	Reapply.	Correct conditions mentioned.
Brick or tile. Small cracks.	Failure wet before plastering. Too little sand. One coat work.	Float crack or apply more plaster.	(1) Wet tile before plastering. (2) Use 3 parts sand. (3) Two coat work.
Concrete. Poor bond.	Use of improper plaster. Unprepared surface.	Remove loose plaster. Condition wall. Apply bond plaster.	Surface must be rough, clean. Use concrete bonding coat.

edge down. Vertical joints shall be staggered.

The ends and sides of sheathing shall be butted tightly, with the ends centered over a support. Sheathing shall fit tightly around all door and window frames. At all openings, water-resistive building paper shall be applied and shall extend not less than 4" on the sheathing. If building paper is required elsewhere by applicable building regulations, it shall be of a water-resistant but vapor-permeable type such as 15 lb. or 30 lb. asphalt saturated, but not coated felt.

When gypsum sheathing is used behind masonry veneer, required brick ties shall be fastened to the studs. Where wood or slate shingles are applied over gypsum sheathing, 1" x 2" nailing strips shall be nailed to the studs and spaced according to the shingle exposure. Where asbestos shingles are applied over gypsum sheathing, they may be applied as specified above for wood or slate shingles, or they may be applied directly to the gypsum sheathing by means of special metal fastening devices.

A clear space of not less than 1 inch shall be provided between the sheathing and the back of masonry veneer. In stucco construction, a clear space of not less than ⅜ inch shall be maintained between the back of the stucco reinforcing and the face of the sheathing.

An outstanding feature of Gypsum Wallboard is its latitude as a decorative background. The fact that it is non-warping, that it stays in place where it is nailed, permits it to be finished with a smooth joint that can be decorated in the same manner as the board itself. This eliminates the necessity of using panel strips or other means of covering joints commonly resorted to with unit wall materials.

Joints Readily Finished. There are two general methods for finishing joints. One is an application of joint cement to fill and smooth joints and spot nail heads and the other application of a reinforcing strip at the joint (usually an open-mesh cloth strip). This strip is cemented tightly against the board and surplus cement scraped off to leave a smooth joint in the same plane as the face of the board.

Can be Used Without Decoration. For a great many uses Gypsum Board is used uncoated, since the typical light color of the board is in itself sufficiently decorative. The usual color is an ivory or cream.

In preparation for decoration, the nails (a three-penny cement coated nail is recommended) are driven flush with the face of the board so that the heads are not apparent to the touch as the hand is run over them. Joints are then filled by either of the two methods mentioned above and the job is ready for decorative treatment.

Painting. The beginning of any successful paint job is a dry surface properly sealed. Proper sizing provides a base for an even lay of color.

For the sizing coat or primer, mix equal parts of a good grade of varnish size with a good grade of ready-mixed paint of the desired color, or with white lead thinned with turpentine or benzine and tinted to suit.

Size the joints first. When dry, size the whole job going over the joints a second time. After the priming coat is dry and is even (with no flat spots) apply a good grade of paint, ready-mixed paint or white lead and turpentine following standard practice.

Calcimining. Size the areas to be calcimined, in the same manner as recommended above for painting. When the sizing is dry and even, apply calcimine according to standard practice in the same manner as if applied over other surfaces. The sizing will permit easy removal of calcimine later when redecorating.

Enameling. Apply a first coat of equal parts of varnish size and a good grade of flat paint in color similar to that of the enamel to be used. When dry, sandpaper and apply two coats of flat paint with color similar to that of the enamel. Allow each coat to dry and sandpaper with No. 00 Sandpaper. Apply enamel according to best decorating practice.

Wall Papering. Apply a good grade of varnish size. When sizing is dry, hang the wallpaper as over other surfaces. Sizing first will permit easy removal of paper when time comes to redecorate.

INSULATING BOARD LATH

Insulating board lath combines an insulating material and a plaster base in a single product. It provides a continuous surface to receive the plaster and thus eliminates any possibility of lath marks. Application of plaster does not detract from the board's insulating value.

The units are four feet long and they come in several widths. They are made in two thicknesses—one-half inch and one inch—to permit the builder to choose the amount of insulation needed for a specific job.

Insulating board lath is manufactured with special joints for reinforcing the plaster at those locations. The plaster bond between the insulating board lath and the plaster averages 1,000 pounds to the foot. This gives a safety factor of about 200.

The lath is easily cut and fitted. It can be nailed to wood studs or ceiling joists and is then ready to receive the plaster. Where the exterior is solid masonry, the lath can be applied to the inside surface over furring strips.

The use of insulating board lath on the inside of the studding and insulating board sheathing on the outside provides an insulated wall of sufficient heat resistance for practically all climatic conditions. This method of insulation also permits the placing of a vapor barrier on the back of the lath, thereby removing the danger of damage from condensation to the exterior wall.

Because of its flexibility, insulating board lath may be bent around arches, alcoves and circular stairs without having to be scored or broken.

Sizes: 4 feet long; 16, 18 and 24 inches wide; ½ and 1 inch thick.

Storing: (See section on insulating board, under "Building Boards.")

Application: The convenient size of insulating board lath facilitates the application of this product by the lather. The studs, joists and rafters should be erected as in ordinary frame construction on 12 or 16-inch centers. For exterior solid masonry walls install 1x2 furring strips vertically on 12 or 16-inch centers and shim to a true, level plane. Special 1⅛ blued plasterboard nails with $\frac{7}{16}$-inch heads are recommended for ½-inch lath and 1¾-inch nails of the same type for ¾-inch and 1-inch lath.

Insulating board lath should not be moistened prior to, during or after application. Lath should be applied with long edges at right angles to the framing or furring strips. Center all end joints on framing and stagger the vertical joints of each course of lath with the joints of the preceding course. Manufacturers' instructions should be followed where lath with special joints is used. Nail lath securely to framing, using five nails at each stud or furring strip: that is, twenty nails for each lath when framing is on 16-inch centers. Use strips of insulating board lath where piecing out is necessary; do not fill out with wood lath or wood strips. To cover arches, curves and sweeps, first nail lath at the end, bending it to the required contour and then nail to each successive stud, joist or furring strip.

All outside corners should be reinforced with metal corner beads. Reinforce all re-entrant angles with standard expanded metal lath strips 6 inches wide bent into the angle and secured in place by nailing. Use 6 inch strips of expanded metal lath to reinforce all joints between frame and masonry construction.

Standard gypsum cement plaster or gypsum wood fiber plaster containing no lime should be used for scratch and brown coats. Both coats should be mixed to a wet consistency to allow for application with light trowel pressure and to facilitate darbying. Any standard plaster finish may be used over the brown coat such as gypsum, lime or lime gauged with gypsum.

The plaster should be applied in three coats to full ½ inch ground. Rod and trowel surface to a true plane. All corners and angles should be plumb and true and darby strokes should be in the direction of framing members with the darby spanning two or more studs or joists.

Provide adequate ventilation for proper drying of the plaster. Proper ventilation is necessary in winter as well as in summer. Adequate heat should be provided in winter to prevent injury to fresh plaster by frost.

VERMICULITE

Vermiculite is a non-metallic mineral of the mica family which is mined in Montana. The ore is dark brown in color and flaky in structure. It is made up of approximately one-million separate laminations per inch, between each of which is held a tiny amount of water. When small flakes of this ore are exposed suddenly to high temperatures, the water held between the laminations changes to steam and expands with such force that the flakes of ore are exploded and expanded into cellular granules about fifteen times their original volume.

In the exploding process, countless numbers of tiny dead air cells are entrapped between the laminations of the cellular granules and it is from this air cell entrapment that vermiculite obtains most of its insulating value. The transformation of the ore brought about by the application of heat also changes the color of the ore from dark brown to gold or silver and due to the fact that the individual laminations of the exploded granules are smooth and bright, it enables them to reflect radiant heat in the same way that a mirror reflects light. By obtaining this dual-insulating value in one material, it enables vermiculite to perform very efficiently at all temperatures from sub-zero up to 2000° F. Vermiculite melts at about 2500° F.

Because of its peculiar characteristics vermiculite has many different uses other than a granular fill insulation.

Because of its lightness in weight, its insulation value and sound deadening qualities, it is used as a plaster aggregate.

Because of its sound deadening qualities, it is used as an acoustal plaster.

And there are many other uses. See Cement Section 17.

Vermiculite Insulating Plaster Aggregate

Vermiculite Insulating Plaster Aggregate has come into great popularity within the last year as a substitute for sand in plaster. Because of its lightness and greater workability, it can be applied more rapidly and with considerable saving of labor over ordinary plasters.

If affords an attractive surface and when finished with conventional type finishes, cannot be distinguished from ordinary sand plaster. It provides a strong serviceable coating which can be used successfully in both residential and commercial buildings. It is adaptable to any type of type of finish or surface treatment ordinarily used over sand plaster.

Vermiculite Plaster Aggregate is the lightest of all mineral aggregates. It weighs only about 216 pounds per cubic yard compared to 2700 pounds for sand or less than one-tenth as much. It has five times more thermal insulating value than sand. It has resilient properties due largely to the entrapped air cells within its laminated structure which impart to plaster unusual resistance to cracking due to nailing, impact, reflection or vibration. This same resilient property enables it to absorb and cushion noise. Its fireproofing, coupled with its insulating value makes it twice as effective for fireproofing as ordinary plaster.

It has the following advantages as an aggregate:

1. INSULATION

Vermiculite All-Purpose Plaster contains millions of tiny dead air cells which create a high thermal insulating value not present in ordinary plaster. It not only lessens the passage of heat through walls and ceilings, but also minimizes the danger of condensation which is such a problem to home-owners.

2. FIREPROOFING

Vermiculite All-Purpose Plaster is not only fireproof, but has high resistance to passage of heat. Used for ceilings and walls, it forms a definite barrier to fire, providing the most economical and easily applied fireproofing for building purposes available. Vermiculite melting point is about 2500°.

3. SOUNDPROOFING

The tiny air cells in Vermiculite All-Purpose Plaster greatly reduces the transmission of sound through partition walls and ceilings insuring greater privacy and freedom from noise and adding greatly to the living comfort of any type building.

4. SOUND ABSORPTION

Harsh noises are cushioned and reverberations are greatly reduced in a room finished with Vermiculite All-Purpose Plaster. The dead air spaces absorb sound, giving the soft acoustics necessary in buildings like theaters, churches, bowling alleys, restaurants, schools and hospitals. Homes, too, become more livable with better acoustics.

5. LIGHTNESS

Vermiculite All-Purpose Plaster weighs considerably less than ordinary plaster. It saves tons of dead weight in the average home and thereby reduces the hazards of building settlement and the resulting problems of cracked walls and ceilings.

6. CRACK RESISTANCE

Vermiculite All-Purpose Plaster has great capacity for absorbing shock or impact. Nails and picture hooks can be driven into it without causing unsightly cracks. Due to its resiliency it can resist the cracking resulting from deflection and internal stress caused by settlement.

Vermiculite Plaster Aggregate is sized to the size of particles of sand. It is packed in bags containing approximately 4 cubic feet of material and weighs at least 28 pounds per bag.

Materials required to plaster 100 square yards ⅛ inch thick:

Mixing Proportions	Number of 100-lb. Bags of Plaster	Number of cu. ft. of Vermiculite Aggregate
1 to 1½	3¾ Bags	5⅝ cu. ft.
1 to 2	2⅓ Bags	6⅔ cu. ft.
1 to 2½	3 Bags	7½ cu. ft.
1 to 3	2⅝ Bags	8 cu. ft.
1 to 3½	2⅜ Bags	8⅓ cu. ft.
3 to 4	2⅛ Bags	8½ cu. ft.

The thickness of any plaster coat can be estimated to be some multiple of ⅛ inch, hence the quantities above would have to be multiplied by the estimated thickness of the plaster coat. Also, as this rule is for solid surface, openings would have to be discounted.

For example, where a masonry wall is to be plastered to ⅝ inch grounds using a mix of 100 lbs. gypsum to 3½ cubic feet vermiculite, the quantities required to cover 100 square yards will be:

Plaster required: 5x2⅜ equals 12 Bags.

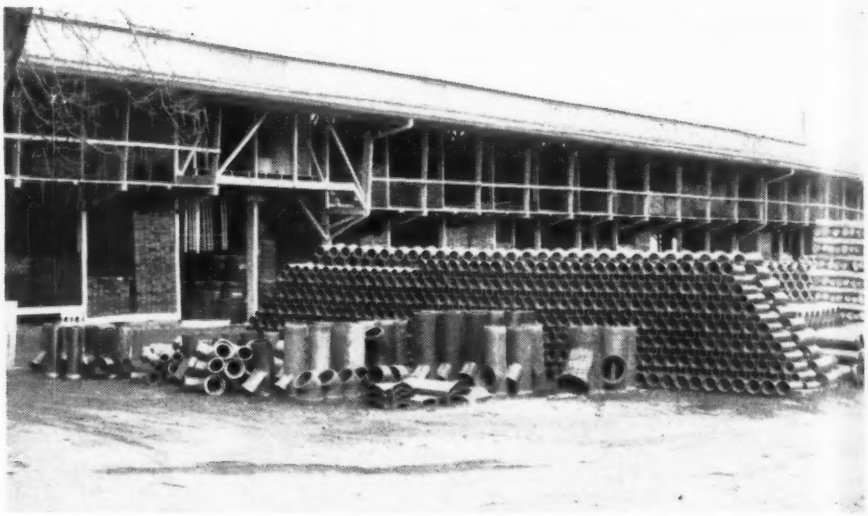
Vermiculite Plaster Aggregate: 5x8⅓ equals 42 Cu. Ft.

The chart below shows the materials needed to plaster 100 square yards ⅝ inch thick over gypsum lath.

Scratch Coat Mix:	Brown Coat Mix:	Trowel Finish Coat Mix:
1 bag gypsum to 2½ cu. ft. Vermiculite	1 bag gypsum to 3½ cu. ft. Vermiculite	1 bag gypsum to 1½ cu. ft Vermiculite
Use:	Use:	Use:
6 bags gypsum 3¾ bags Vermiculite	4¾ bags gypsum 4 bags Vermiculite	3¾ bags gypsum 1½ bags Vermiculite

Section 19

Clay and Tile Products



CONTENTS OF THIS SECTION

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Dealer's function—in serving his customers
Development of "one stop" merchandising
Description of Product Development
Description of related items
Proven methods of handling this product, including related items and minimum stocks
Suggestions for Display
Sales tips for salesmen
Technical data for salesmen's use
How to increase the dollar volume

For Related Sections See Master Index

Description of Products and related items:—Clay, in its various forms is, next to wood, the most universally known building product. Ever since fire was discovered by man, clay, in one form or another, has been used by the people of all countries.

It was and still is being used for making brick, tile, pots, pans, pipe, terra cotta hollow tile, porcelain items, dishes, "china", etc.

It is believed to be the most abundant natural product and it occurs in various grades and consistencies all over the earth.

By refining and processing and with the advent of controlled heat—and the innumerable surface treatments, such as coloring and glazing—countless useful and decorative products have been made available during the last century and are constantly increasing.

Because it is so plentiful in every populated area, it has been accepted as one of the "must" products even in the most primitive localities.

The definition of clay, according to Webster, is—"A soft earth, which is plastic, or may be molded with the hands, consisting of hydrous silicate of aluminum. It is the result of wearing down and decomposition of rocks containing aluminous minerals".

In this section only those clay products which are usable in the light construction industry will be described. These are in part Common brick—for structural use; "Face" or pressed brick—for structural use; "Firebrick" or refractory units—for fireplaces and furnaces; "Fire clay" or pulverized clay used for refractory mortar; Tile flue lining—for chimney construction; Tile coping—for walls (glazed); Hollow tile—structural—building units—for walls and floors; Tile—glazed for wall treatments, such as bathrooms; Tile—Ceramic for floors—sometimes termed Vitreous; Tile for roofing (both glazed and matte); Terra Cotta—exterior decorative building units; Tile—ornamental chimney pots; Drain tile—below footings and for septic tank disposal beds—(unglazed); Tile drainage or soil pipe—(glazed)—and manufactured with "hub" joint connector flanges to act as conduits; "Thimbles"—for smoke pipe connections, etc.

Related items:—These, for the most part, consist of the mortars and cements which join the units or sections together (refer to Sec. 17—Cement and Masonry Products) and (Sec. 11—Hardware) where metal wall ties, coal chutes, ash dumps, ash pit doors, angle irons, etc., are described.

Dealer's function:—In serving his customers, together with appropriate amounts of cement, lime, sand, and prepared mortar mixes as described in Sec. 17, the dealer should be equipped to embrace the sale of clay products to the extent that the most essential construction items are carried in stock; and that provisions are made to obtain bulk quantities of the remaining items delivered direct to the job.

This latter is a time and money saving arrangement because clay products, such as common brick and hollow tile, are bulky, heavy, and each re-handling is an expensive operation.

The extent to which these products should be stocked and delivered by the dealer depends on five factors, which are

1. Storage space in yard near siding.
2. Local competition.
3. Potential market within economic radius.
4. Proximity of local sources of supply.
5. The variety of stocks carried by local sources.

Under normal conditions, specialties other than common brick should be carried in dealer's stocks to service three houses under construction.

The kinds and minimum amounts of each will be described in detail later under the heading titled "proven methods of handling these products."

One Stop Merchandising:—Clay products have a definite place in "one stop merchandising." Many of the regular items, such as common brick, flue lining, drain tile, fire brick, together with related items such as cement and masonry products (refer to Sec. 17 and Sec. 11—Hardware) are required WHEN THE JOB IS STARTED—in many instances BEFORE LUMBER IS DELIVERED. Adequate, prompt delivery is an essential requisite for the dealer who anticipates "selling the whole house" and his best chance is at the start.

Product Development:—While clay products are probably the oldest form of manufacturing, the industry has, after remaining stagnant for centuries, made excellent progress in scientifically controlled fabrication in the last two decades.

Improved selection and blending of raw materials, engineered kilns, improved molding and forming machinery, thermostatic and pyrostatic control of heat cycles both as to temperature and time, all of these advances have been made by the research staffs and testing laboratories conducted in part by Federal agencies, universities, manufacturers, and the Clay Products Institute, which, in addition to making many valuable contributions to the perfection of clay products, has co-ordinated, assembled, and arranged the valuable data from these other agencies and made them available to those interested in the many uses and applications of clay products in the fields of light and heavy construction.

Space limitation prevents further description of the manifold uses of the over 5,600 clay product items, which are used in many other fields, such as the electric, chemical, houseware, plumbing fixture, pottery, etc. It may be expected, however, that continued advancement towards the further perfection of structural clay products will continue at an accelerated pace.

Description of related items—and minimum stocks.

Item Description-function	Refer to Sec. No.	Minimum Stock required
( ) 1. Metal wall ties—to bond veneer walls or face brick	11	2000
( ) 2. Metal nailing inserts to secure furring	11	2000
( ) 3. Metal wall anchors —and joist hangers and stirrups	11 2	100 each size 50
( ) 4. Angle irons — to carry load over openings in walls	11	each size 20
( ) 5. Clean-out doors to permit ash removal	11	each size 10
( ) 6. Coal chutes — for fuel delivery to bin	11	6
( ) 7. Ash dumps for fireplaces	11	6
( ) 8. Heat-saver fireplace units or Dome dampers for fireplaces	11 2	each size 3 each size 3
( ) 9. Re-enforcing rods for hollow tile floor construction	11	each size 200 L.F.
( ) 10. Structural I-beams or channels	11	(special order)
( ) 11. Cement, mortar, sand, lime and concrete	17	(see minimum as described in sections)
( ) 12. Mortar colors	17	(see minimum as described in sections)
( ) 13. Paints and coatings	17	(see minimum as described in sections)
( ) 14. Masons' tools	11	(see minimum as described in sections)
( ) 15. Metal window frames	2	(see minimum as described in sections)
( ) 16. Scaffold material	1	(see minimum as described in sections)

Proven methods of handling these products:—To be able to give prompt service, the dealer should carry in stock the "fast moving" or emergency items both as to clay products and also those essential related items.

In sec. 11—Hardware and Related Items—all iron and steel related items are described. In Sec. 17—Cement-Masonry Products—mortars, sand, concrete, lime, mortar colors, etc., are outlined in detail both as to kinds and minimum stocks.

Clay products themselves are comparatively simple to store. There is little or no danger of spoilage or inventory shrinkage and the only positive requirements are: (a) reasonably dry (preferably slightly elevated) ground near R.R. siding to expedite unloading; (b) reasonably adequate shed type shelter to ward off rain or snow.

Carefully piled or stacked, considerably large quantities may be placed in restricted storage areas; for example, Common brick stacked 5 ft. high x 18" wide x 1 ft. long will accommodate—150 brick or approx. 100 brick per sq. ft. Thus, 10,000 brick can be stacked in a space (not including aisles) of 100 sq. ft. or with 3 ft. aisles on each side and, a square 16'x16' would comfortably house 10,000 brick (at 5' height). For each foot more or less in stack height, add or deduct 2,000 brick.

Other clay products, such as flue lining, drain tile, coping, soil pipe, and fittings, also lend themselves to economic storage space facilities.

Minimum stocks:—In general, sufficient material should be available to service three ordinary house jobs at all times and it should consist of

( ) Common brick (for chimneys, fireplaces, area ways, sills, lintels, etc.).....
Misc. purposes .....
Minimum (not inc. veneer jobs).....

( ) **Common or face brick for brick veneer jobs will average approx. 12,000 brick per job .....

( ) Flue lining—this is commonly specified in three sizes: i.e., 8"x8", 8"x12", 12"x12". The average house will require approx. three flues, either separate or built together, and on the basis of 1½ to 2 story houses will have an average length of 30-32 ft. per flue—consequently minimum stocks for 3 houses are:

( ) 8"x8" flue lining (in 2' lengths)—50 pcs. or 100 L.F.
( ) 8"x12" flue lining (in 2' lengths)—50 pcs. or 100 L.F.
( ) 12"x12" flue lining (in 2' lengths)—50 pcs. or 100 L.F.
( ) "Thimbles"—assorted sizes—6", 8", 10"—12 of each size.

(*) This should be yard stock.

(**) These should be ordered for the job, either common or face per specification.

( ) Drain tile—This comes in two types "U" shaped or round—4" in diameter.....400 l.f. of each
( ) Glazed clay soil pipe for drains, leader connections, etc., 3" and 4" in 2 ft. lengths.....200 l.f. of each
( ) Glazed clay soil pipe fittings:—Ells, sweeps, tees, branches, "Y" fittings in two sizes—3" and 4".....12 of each
( ) Face brick—for steps, porch borders, fireplaces, sills, lintels, chimney caps, etc., (*not incl. veneer jobs)—usually supplied in several colors and surface textures or finishes—depending on sources and varieties, minimum stock of "best sellers"..1,500 of each (*) For veneer jobs, these should be ordered specifically for each job.
( ) Fire brick (whole) for fireplace backing..... 300
( ) Fire brick (split) for fireplace hearths..... 150
( ) "Quarry tile" for fireplace hearths, entries, etc., either 4"x4", 5"x5", or 6"x6" (usually 4"x4" is best) .....200 sq. ft. of each
( ) Glazed clay wall coping for 8" wall..... 100 pcs.
( ) Glazed clay wall corners and ends..... 12 each
( ) *Ceramic or Vitreous tile for floors.
( ) *Decorative tile for wainscot.
( ) *Ornamental chimney pots.
( ) *Structural Terra Cotta.
( ) *Ornamental Terra Cotta.
( ) *Other clay products specialties.

*These items, in the majority of cases, can be ordered either as materials to be delivered or as a complete installed service by a tile contractor. The time element, because they are not required immediately, is usually ample for the dealer to arrange for a satisfactory delivery schedule.

Suggestions for Displays:—Brick manufacturers and distributors have, by mounting "split" brick into framed display panels in various colors, textures, bonds, mortar colors, kinds of joints, provided an excellent means of brick display which, because they actually have "the feel," are more effective than colored photographs.

Tile manufacturers have, likewise, developed sample display boards including the mounting of essential bathroom and kitchen accessories. These should be obtained and used.

Each of the above can (by planning a functional layout) be converted into a most attractive display; one which can be easily altered to correspond with either available stocks or possible changes in sources of supply.

In addition to the above, illustrated pamphlets and folders should be available for distribution to interested prospects.

Sales Tips for Salesmen:—Check plans or sketches to find number and sizes of fireplaces, hearths, kinds and colors of brick, angle irons, heat-saver fireplace units, face brick for other purposes (try to have customer select ONE kind of face brick for the entire job).

Check number, sizes, and heights of flues and chimneys, pieces of flue lining. and number of thimbles required.

Suggest fireplace if not shown on plan or suggest an "extra" in the recreation room.

Aid in selection of brick texture and also mortar colors—pick the best.

Check and measure hearths for quarry tile; also bathrooms and lavatories for tile floor and wall areas; and note amount of metal lath required for these (to aid in lath estimate).

Recommend waterproofed mortar, either pre-mixed and packaged or cement integrally waterproofed, or the addition of powdered, liquid, or paste waterproofing to the mortar mix for all exposed brick-work.

When selling brick walls, remember:

That drain tile is a sound precaution to keep the basement dry.

That waterproofed cement plaster is splendid protection when applied up to grade level (Sec. 17).

Clay & Tile Products

That brick areaways will look better and last longer than metal surrounds.

That fireplaces need andirons, grates, fire sets (Sec. 11).

That porch steps or platforms are enhanced with wrought iron railing (Sec. 11).

That out-door terraces, barbecues, floors and walks can be most attractive and durable if made of brick (see Table No. III, Sec. 19).

9. Technical Data for Salesmen:—Estimating quantities quickly and simply from either plans or customer's description can be accomplished by reference to Tables No. I, II, III.

Table I —gives information on brick and mortar quantities for walls.

Table II —relates to chimneys and fireplaces with illustrative examples.

Table III—relates to lintels, sills, steps, floors and piers.

Note: When referring to any of these tables be sure to refer to Sections 11—Hardware and related items and also Sec. 17—Cement and Masonry Products.

Table No. I

Brick and Mortar required for walls:—for 1 to 100 sq. ft.—in thicknesses of 1, 2, 3, or 4 brick with minimum unit quantities which salesman can order to fill customer's requirements.

Basis:—Brick size 8"x2¼"x3¾"—Mortar joint—½ inch

Wall Area Sq. ft.	1 brick thick 4" wall		2 brick thick 8" wall		3 brick thick 12" wall		4 brick thick 16" wall	
	No. Brick	Cu. ft. Mortar	No. Brick	Cu. ft. Mortar	No. Brick	Cu. ft. Mortar	No. Brick	Cu. ft. Mortar
1	6.2	.08	12.4	.195	18.5	.314	24.7	.433
10	62.	1.	124.	2.	185.	3½	247.	4½
20	124	2	247	4	370	6½	493	9
30	185	2½	370	6	555	9½	740	13
40	247	3½	493	8	740	13	986	17½
50	309	4	617	10	925	16	1233	22
60	370	5	740	12	1109	19	1479	26
70	432	5½	863	14	1294	22	1725	31
80	493	6½	986	16	1479	25	1972	35
90	555	7	1109	18	1664	28	2218	39
100	617	8	1233	20	1849	32	2465	44

(*)—Mortar Formula

1. 1 bag of prepared Mortar Mix.
   3 cu. ft. of Sand—will make.....3 cu. ft. Mortar
2. 1 bag Portland.
   3 cu. ft. of Sand.
   10 lbs. of Brick Lime—will produce....3 cu. ft. Mortar

(*) For further information on Mortar quantities refer to Sec. XVII—"Cement and Masonry Products".

Brick Veneer:—When figuring face brick for veneer jobs add 1/5 or 20% to allow for breakage and headers around window and door openings. Figure metal wall ties at 1 per sq. ft. of wall area—(refer to Sec. 11—"Hardware").

Simple Conversions for Salesmen—From Table No. 1

1 bag of cement and lime mortar 1-3-10%, or
1 bag of pre-mixed brick mortar with 3 cu. ft. sand will make .....3 cu. ft.
Or enough Mortar to lay approx.....185 brick
1 ton of sand will require approx.
7 bags of Portland cement or pre-mixed mortar.
70 lbs. or approx. two 50 lb. bags of brick lime if Portland cement is used.
This will produce approx. 22 cu. ft. of mortar—
Sufficient to lay approx.....1,350 brick
1 cu. yd. of sand will require approx.
9 bags of Portland cement and two 50 lb. bags of brick lime, or
9 bags of pre-mixed brick mortar and produce nearly 27 cu. ft. of mortar—
Sufficient to lay approx.....1,650 brick

Estimating Number of Brick for Walls

Rule 1. Find total length of wall to nearest foot.
Rule 2. Multiply total length by height.
Rule 3. Divide total by 6.2 for 4 in. wall.
12.4 for 8 in. wall.
18.5 for 12 in. wall.

Using Table No. 1 for an example—illustration of finding brick quantities for typical cellar (8") walls:
House—size 24'x30'—with total perimeter of 108 l.f. (after deducting for double corners, will reduce to approx. .....105 lin. ft.
Wall height—7 ft.—7x105=735 sq. ft.—8" wall requires 1,233 brick per 100 sq. ft. (see Table No. I) 1,233x735 ..... 9,063 brick
Because window openings will more than make up difference—ORDER 9,000

Mortar quantities:—(a) (with sand by the ton) or (b) (by the cu. yd.) if 1 bag of cement or pre-mixed mortar will produce 3 cu. ft. mortar to lay 185 brick—then approx. 144 cu. ft. of mortar will be needed to lay 9,000.
144-3=48 bags of cement—and
6½ tons sand—or—order.....7 tons
5½ cu. yds. sand.....6 cu. yds.
5 bags of lime (if Portland cement is used) .....5 bags

Table No. II

Brick Work in this Table based on 4½ courses per ft.—½" Joints
Brick, Mortar and Flue Lining required for Chimneys and Fireplaces based on 4" outer wall and 4" withes between flues.
— Chimneys per 10 Lin. Ft. of height —

Flue sizes	No. of Brick	Cu. ft. Mortar	Bags Cement	Cu. ft. Sand	Sections 2'0" flue tile 8x8	8x12	12x12
8"x8" single	270	4.5	1.5	5.0	5	..	..
8"x8" double	405	6.5	2.2	7.0	10	..	..
8"x12" single	315	5.1	1.7	5.0	..	5	..
8"x8"-8"x12"	450	7.3	2.5	7.0	5	5	..
8"x12" double	500	8.1	2.7	8.0	..	10	..
8"x8"-8"x12"-8"x12"	810	13.1	4.4	13.0	5	10	..
8"x12" and 12"x12"	565	9.2	3.1	9.0	..	5	5
12"x12" single	360	5.8	2.0	6.0	..	..	5
12"x12" double	610	9.9	3.3	10.0	..	..	10

Clay & Tile Products

RULES

1. Scale length of chimney from plan and multiply by above 10′ units.
2. Refer to Table No. I for conversion rules into tons and cu. yds.
3. Place order to nearest larger ton, cu. yd., or bag.
4. Interpolate above figures into one ft. by adding decimal point. (See example on next page.)

Fireplaces: These consist of ash pit (or basement fireplace), chimney and fireplace section to house hearth, damper, etc., tapered reduction to chimney proper.

To estimate: Figure total plan sizes in height, width, and depth solid in cu. ft. to a point 4 ft. above basement floor and figure 15 brick per cu. ft. for quantity.

Figure exposed face of fireplace mantel in sq. ft. and allow 7 brick per sq. ft. of exposed area (this will be determined by width, height, and depth).

Figure fire brick for backing at..... 50 pcs.
Figure fire brick for hearth floor..... 20 pcs.
Figure quarry tile for front of hearth.....10 sq. ft.
Figure 1 bag of fire clay for mortar.
1 ash dump—8″.
1 ash pit door—10″.
One 3″x3″x36″ Angle iron.
One 36″ dome damper.

*Example of Chimney Quantity Estimate, developed by figures from Table No. II

2 story house—24′ wide x 30′ long—1/3 pitch

Basement Ht.—7′0″ — 1st fl. 8′0″ — 2nd floor 8′0″ — attic 8′0″ =	31′0″	add attic ceiling and rafters	1′0″
add 1st floor joists and sub-floor	1′0″	*Total chimney height =	34′0″
add 2nd floor joists and sub-floor			

Chimney size—1—8″x8″ and 1—8″x12″ flue built together

Refer to Table No. II and find — for 10 ft. and multiply by 3.4

No. Brick	Cu. ft. Mortar	Bags Cement	Cu. ft. Sand	Flue Lining 8x8	Flue Lining 8x12
450	7.3	2.5	7	5	5
3.4	3.4	3.4	3.4	3.4	3.4
180.0	2.92	1.00	2.8	2.0	2.0
1350.	21.9	7.5	21.	15.0	15.0
1530.0	24.82	8.50	23.8	17.0	17.0

From these simple computations, the salesman would write an order as follows:

Common Brick	1550
Cement or prepared mortar	9 bags
Sand @ 22 cu. ft. per ton	1¼ tons
Sand @ 27 cu. ft. per cu. yd.	1 cu. yd.
Flue lining — 8″x8″	17 pcs.
Flue lining — 8″x12″	17 pcs.

*Note:—When scaling chimney heights, always allow for each chimney to extend two feet above roof ridge (usually, all plans provide for this requirement).

Table No. III

How to figure—lintels, sills, steps, floors, piers

1. LINTELS AND SILLS are computed by the linear foot. Brick, when laid on edge or end, commonly called "row lock" or "soldier" courses, will average 4½ brick per lin. ft. and 1 cu. ft. mortar for 10 l.f.
2. STEPS—approx. 10″ tread and 7½″ riser will require 8 brick per l.f. and 2 cu. ft. mortar per 10 lin. ft.—also add 1 cu. ft. concrete per lin. ft.—(refer to Sec. XVII—Cement and Masonry Products) for re-enforcing (refer to Sec. XI—Hardware and Related Items).
3. BRICK FLOORING per 100 sq. ft.—floors may be laid as follows:

	brick	Cu. ft. mortar
(a) Flat—basket weave design and require....	450	3.0
(b) on edge—basket weave design and require.	700	7.0

Figure 1 cu. yd. concrete (refer to Sec. XVII)—per 100 sq. ft. (for base 3″ thick.)

4. PIERS—Figure these in cu. ft. @ 20 brick per cu. ft. or

12x12″ piers.....20 brick per foot high
12x16″ piers.....27 brick per foot high
16x16″ piers.....36 brick per foot high

Figure 1 cu. ft. of mortar to every 3 ft. of height or 1 bag of cement to every 10 ft. of pier.

Illustrative Example for Estimating

Assume there are three brick piers—12″x12″ by 7 ft. high

Ans. 3×7 = 21 lin. ft. = 21×20.....420 brick

2 bags of (*) cement
6 cu. ft. sand
(†) 20 lbs. brick lime
(*) or prepared mortar
(†) if Portland cement is used.

Note:—At times "bond stones" 3 to 4″ thick are placed at appropriate intervals.

How to increase the dollar sales volume:

Ask for time to study the plan to find the most appropriate applications of these products.

Review the "tips for salesmen" and incorporate those which appear to be most fitting to meet the customer's needs.

Build the order to include these related items and services in a manner so that they may be included in the deferred financing arrangements.

Contact co-operative outside material sources, who will give prompt service to your order.

Make definite arrangements with sub-contractors such as tile setters to the end that you will control the sale and time of delivery of his services and include this in your price to the customer. By this method you can realize a legitimate overhead and profit. Give good service to the customer, and become the most important customer of the contractor.

"...Sold 14 HomeOla Homes in 45 Days"

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THE HOUSE OF AMERICA'S MILLIONS
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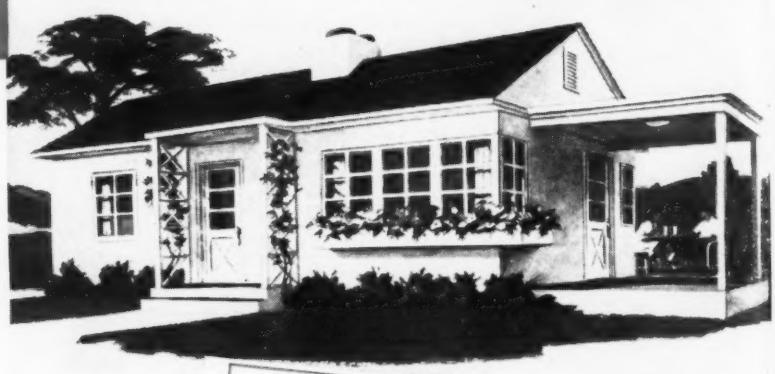

Merl Stahl of the Sandusky Lumber and Supply Company, Sandusky, Ohio, says:

". . . we are enthused about HomeOla, particularly the *Berkeley* (Model 21) . . . We have sold 14 of the *Chevy Chase* (Model 11) up to the present moment, in a period of 45 days. The first three show a developed cost of $5950 compared with our experienced estimate of $6700 to $6800 for a similar house built conventionally.

"HomeOla materials are nicely packed and easily sorted—with a great deal of thought given to ease of erection. This home is substantial, with the plumbing panel meeting our exacting code . . . We have had favorable comments from all building and loan associations, banks and building inspectors as to quality (of these homes)... We are going to go a long way with HomeOla.

"The writer will erect two *Winsteds* (Model 221) and one *Malden* (Model 241) for himself and his associates as permanent homes."

Once again, proof that HomeOla is a sales "natural" for wide-awake lumber dealers who are anxious to cash in on the tremendous 1947 housing market. Once again, a brilliant example of how dealers can help themselves to quick profits—Mr. Stahl got nearby building contractors to work with him selling HomeOlas for the mutual benefit of dealer *and* builder.

HomeOla is catching on fast—already thousands of these permanent, quality homes are being lived in all over the country and in Alaska. The FHA, the National Bureau of Standards, the Department of Commerce and scores of regional and local housing agencies have given unqualified approval.

Production is rising rapidly, so there are still choice dealerships available. Climb on the bandwagon *now*. Increase *your* profits, too. Write or wire today for the complete details!

HomeOla is on the Air!

Hear the HomeOla story that'll sell houses for *you*. Tune in these popular daily network programs starting April 14:

Life Can Be Beautiful—3 P.M. (EST)—NBC
Perry Mason—2:15 P.M. (EST)—CBS
Jack Smith Show—7:15 P.M. (EST)—CBS

Procter and Gamble selected the *Berkeley* model HomeOla (above) to feature in this nation-wide contest for their great new cleaner, Spic and Span. See full color newspaper ads read by families in your own community beginning April 13, and big color pictures in your local grocery stores. *Tie in with this tremendous promotional program!*

THE HOMEOLA CORPORATION 9 SOUTH CLINTON STREET · CHICAGO 6, ILLINOIS

MAKERS OF STANDARDIZED HOUSE PARTS FOR LUMBERMEN

DEALERS ARE FULLY PROTECTED AT ALL TIMES AND SUPPORTED BY STRONG NATIONAL ADVERTISING

Prefabricated Products

When pre-fabricated houses are sold importantly in his community, the dealer—as home merchant to the community—should sell them. Perhaps he should pre-fabricate them too—but that is another story.

The term "pre-fabrication" is ambiguous—different people define it differently. We use the term here to describe a building "package" in which the cutting and fitting customarily performed by the skilled carpenter on the construction site is performed elsewhere.

The "package" might be a house, a barn, garage, poultry house or any other light construction unit.

"Factri-built," "readi-cut," "patented," "sectional," "poured" and "yard-fabricated" houses of wood, concrete, aluminum, steel, asbestos, synthetic materials, plywood, etc., all come under the general term "pre-fabricated."

The term "industrialized house" is probably to be preferred when describing an identifiable branded new house unit with a manufacturer standing behind the house as a trade-marked unit.

Whatever a dealer's opinion of the merits or demerits of pre-fabricated or industrialized houses, **as long as there is a shortage of skilled house building mechanics, such houses will find a consumer market.**

The fact that the pre-fabricator (local, regional or national) can build houses or house sections behind four walls with unskilled labor assures him a market as long as the house is livable and the price within reason.

If the dealer is merchandising an industrialized or branded house he may expect the manufacturer who lends his name to the product to work out with him the local solution of the key problems which have so far plagued the industry, i. e., resistance of organized labor, preparation of the construction site, unfavorable zoning regulations, restrictive building codes, resistant financing agencies, recalcitrant mechanical and equipment trades, etc.

If the dealer fabricates house sections, sectional buildings or complete houses in his own yard, he must tackle these problems himself.

People will buy pre-fabricated houses because of:

1. Availability
2. Speed of delivery
3. Ease of purchase
4. No extras
5. Simplicity—no mystery
6. Professional Salesmanship
7. Reasonable price.

(It may be noted in passing that any dealer who supplies these seven items well can sell houses of any type or types!)

For the information of dealers there is a national association of producers called the Prefabricated Home Manufacturers' Institute. These are companies with established reputations and several of them have been exceptionally successful with lumber dealer distribution.

Some in fact distribute exclusively through lumber dealers and protect the dealer on direct sales.

(Names of such companies will be supplied on request.)

Some pre-fabricators supply a very limited group of items (other than pre-fabricated sections) for the house. This policy provides an opportunity for the dealer to make a material profit on the missing items as well as a profit on the completed house itself.

The following chart supplied by a manufacturer illustrates this procedure.

The Following Items are Supplied by the Manufacturer

1. Complete house in panel sections
2. Aluminum foil insulation in place in wall and roof sections
3. Hardware complete
4. Cellar sash and frames
5. Lally columns
6. Sills, girders, and anchor bolts
7. Cellar stairs
8. Awning type windows and screens
9. Screen doors
10. 5/8" plywood sub-floor
11. Bathtub with shower or stall shower
12. Water closet
13. Lavatory
14. Medicine cabinet
15. Kitchen sink
16. 30 gal. automatic hot water heater
17. Kitchen cabinets
18. Composition roofing
19. Front canopy
20. Awning rack
21. Porch wing
22. For houses planned for erection on a basement, the above is supplied
23. For houses erected on foundation wall, the floor is insulated and panel provided for closing stairwell, items 4, 5, 7 not included

The Following Items are Not Supplied

1. Gutters and down spouts
2. Finished flooring
3. Plumbing pipes, fittings, septic tank, etc.
4. Heater and ducts
5. Range and refrigerator
6. Utility connections
7. Electrical wiring and fixtures
8. Excavation and masonry
9. Erection and painting
10. Termite shields
11. Grading, landscaping, driveways and walks

12 Factories
Now Making Prompt Deliveries

FORD Factory Built HOMES

Dealers in the following territories are invited to take advantage of the excellent service and cooperation offered by the nearest Ford Factory-Built Homes Franchise-Manufacturer:

Connecticut, New Jersey, Central and Western New York, Eastern Ohio, Western Pennsylvania, District of Columbia, Florida, Georgia, Eastern Michigan, Northwestern Illinois, Southwestern Wisconsin, Eastern Iowa, Northern California, State of Washington.

See these homes. You'll be impressed with the values they offer. Let us put you in touch with the Franchise-Manufacturer nearest you.

Responsible concerns in territories not already being served by established licensees are invited to contact us with reference to qualifying as Franchise-Manufacturers. To those who meet our standards we are in position to furnish architectural, engineering and procurement service to enable them quickly to get into production of these sturdy, time-tested, F.H.A. approved homes for distribution in their vicinity.

Ford Factory-Built Homes are

- Carefully Planned
- Conventionally Styled
- Thoroughly Insulated
- Economical to Maintain
- High in Resale Value
- Approved by F.H.A.

FACTORY BUILT HOMES, Inc.
McDonough, N. Y.

HOMES BY CRAWFORD
Craftsmen

POST WAR VOLUME PRODUCTION SINCE 1945

FABRICATED

■ MULTIPLE RENTAL UNITS

Meet current F.H.A. Rental Standards
Develop Satisfactory Investment
Desirable Land Planning Arrangements

■ INDIVIDUAL PACKAGED HOMES

F.H.A. Approved, desirable loan commitments
Complete Houses
Meet Mass Market Price demand
Beautifully designed
Scientifically built by Skilled Craftsmen
Suitable for project developments

■ COTTAGES

Economical, Attractive, Comfortable
For a Home, Beach Cabin or Tourist Court

■ GARAGES

Sturdy, attractive, serviceable

Sold Only Thru Exclusive Distributors ***--WRITE NOW!***

CRAWFORD COMPANY
Manufacturers — Houses, Buildings — Lumber, Related Products
BATON ROUGE, LA.
Phone 4-1561
P. O. Box 989

Pre-Fabricated Products

Editor's Note—The reader will note that brackets ( ) are placed in front of certain items listed in this section. This is designed as a guide to the retail salesman in selling. The manager should check (√) those items which will normally be carried in stock. If the item is not normally carried in stock but will be secured for the customer the following (X) check should be used. If, however, the item is not to be sold under any circumstances, the check (O) should be used.

Space is provided for the insertion of additional items.

Sales Items

( ) Aluminum Houses
( ) Cemesto-Board Houses
( ) Concrete Houses
( ) Demountable Houses
( ) Factory-Fabricated Floor Sections
( ) Factory-Fabricated Roof Sections
( ) Factory-Fabricated Summer Houses
( ) Factory-Fabricated Tourist Homes
( ) Factory-Fabricated Wall Sections
( ) Factory Readi-cut House Lumber
( ) HomeOla Houses
( ) Industry-Engineered Houses*
( ) Log-type Pre-fabricated Houses
( ) Plywood Houses
( ) Porcelain-Enameled Steel Houses
( ) Portable Houses
( ) Pre-Fabricated Door Units
( ) Pre-Fabricated Floor Units

_____

_____

_____

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_____

( ) Pre-Fabricated Roof Trusses
( ) Pre-Fabricated Window Units
( ) Rammed-Earth Houses
( ) Steel Houses
( ) Synthetic Material Houses
( ) Trailer Houses
( ) Wood Bow-String Trusses
( ) Yard-Fabricated Floor Sections
( ) Yard-Fabricated Garages
( ) Yard-Fabricated Grain Bins
( ) Yard-Fabricated Hog Houses
( ) Yard-Fabricated Houses
( ) Yard-Fabricated Poultry Houses
( ) Yard-Fabricated Roadside Stands
( ) Yard-Fabricated Roof Sections
( ) Yard-Fabricated Summer Houses
( ) Yard-Fabricated Wall Sections

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Note—Many dealers are capitalizing on the consumer trend to contribute his own construction labor to site assembly and fabrication. This tendency should be fostered in every way during the current shortage of building labor.

*THE STORY OF INDUSTRY-ENGINEERED HOMES

(Excerpt from Banking—March 1947 Issue)

In September 1945 a Manufacturer-Dealer Coordinating committee was formed, consisting of 14 dealers representing geographical coverage of the country and 14 manufacturers representing major industries contributing to the home.

They adopted a concept called Industry-Engineered Homes and in the past year and one-half this committee has brought the concept into a realistic project.

What are Industry-Engineered Homes?

The concept was initiated several years prior to the war on the premise that neither prefabrication nor orthodox construction held the complete answer to the provision of new homes at prices the masses could afford to pay. Prefabrication is a marginal answer because it fails to employ the bulk of the local construction industry. Orthodox construction would not fill the bill.

An industry-engineered home goes down the middle of the road between prefabrication and orthodox construction.

In 1940 a plan book of industry-engineered homes designed for the farm market was published. Approximately 125,000 copies had been mailed when the war broke and new home construction was stopped.

The postwar industry-engineered house is based on partial standardization of design within a modular pattern called a "domino." A domino is a 16x24 foot unit that can be multiplied to fit the requirements of any family.

These dominos may be arranged into patterns providing for an indefinite variety of external architectural treatments—and a very considerable variation of internal arrangements.

Yet the dominos make possible very considerable savings in (a) factory production costs, (b) site production costs and (c) distribution costs.

Under the industry-engineered house plan each manufacturer is requested:

To engineer his line of products into the home in such a manner as to reduce the amount of on-site labor to an absolute minimum.

To coordinate his engineering with that of other product manufacturers whose products are involved with his in on-site construction work, effecting further savings.

To package his products for an individual house in a manner that will bring all possible cost reductions between factory doors and the completed job. (He will be requested to include in his package engineering miscellaneous items from subcontracting manufacturers that would logically be packaged with him.)

To determine the exact number of hours of construction or installation time required to complete on-site work in connection with his package.

To prepare to distribute to the job his package in the most direct distribution lines possible.

With this work completed the technical staff of the Manufacturer-Dealer Coordinating committee will coordinate the engineering of all manufacturers and prepare final plans and specifications for release.

The plans will be released to the industry through dealer members of the National Retail Lumber Dealers association and the 32 regional affiliated associations. The homes will be sold, erected and delivered by the dealers and their affiliated building contractors.

Responsibility to the consumer will be centered in the two investment factors of the industry—the manufacturer, in so far as the individual product package is concerned, and the dealer, for local considerations.

This responsibility constitutes, for the first time, a true home-building industry.

What savings may be expected?

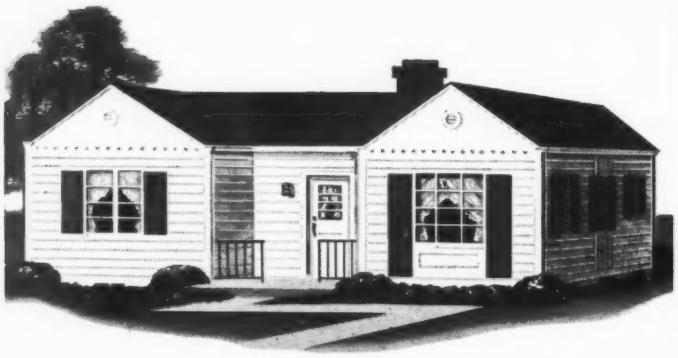
These savings will be in two categories: in construction labor and in the labor involved in distribution.

Minutes and hours of assembly, installation, fabrication and erection labor can be saved in each of the building trades by careful engineering and packaging of each type of material and equipment with the sole thought of reducing on-site labor costs.

In the area of distribution, the development of unit house packages of the various major classes of materials and equipment by their manufacturers would facilitate carload shipments to a single type of warehouse between the factories and the job site.

In a program as basic as this, a multitude of difficulties and details must be mastered. Budget and staff problems continue, but at the current meeting of the coordinating committee it is expected that a number of Industry-Engineered Home designs will be approved—sufficient to cover the needs of the average family consumer—and that manufacturers' package engineering will be sufficiently advanced to facilitate marketing plans.

Meanwhile, at various points in the country, certain dealers are erecting "domino houses" in an effort to iron out local industry and on-site problems against the day when a line of industry-engineered homes will be offered to the public. Substantial local savings are already indicated.



COLONY HOMES

. . . A GOLD MINE
FOR DEALERS WHO QUALIFY!

This new line of sturdy prefabricated homes, featured in the January 4 issue of American Lumberman, includes many sales and construction features usually found *only* in conventional homes. Basic floor plan: four rooms with bath and entrance hall. Extra bedroom, breezeway-garage may be easily added. FHA and PHMI approved. Deliveries made directly to building site . . . *complete*, ready to erect.

Dealers are invited to write regarding open territory in midwest.

PRE-FAB INDUSTRIES
1601 Main Street · South Bend 23, Ind.

GARDEN COTTAGE
Prefabricated by
WALNUT

ALL ABOARD FOR PROFITS

Here's your opportunity to cash in RIGHT NOW on the demand for low-cost housing. Some dealer territory available. Write for information today.

WALNUT
PLUS VALUES
Easy Erection
Convenience
Good Quality
Fair Prices
Insulation
Good Looks

GBH-WAY HOMES, INC.
Dept. AL · WALNUT, ILLINOIS

The Work of the Building Products Salesman

A Complete Job Analysis and Basis for Training Which Will Facilitate More Effective Selling of Lumber and Building Products.

Published By
American Lumberman & Building Products Merchandiser
139 N. Clark St., Chicago 2, U.S.A.

Consists of 56 pages, size 8x11 inches

The Work of the Building Products Salesman NOW in Special Booklet Form

A Blueprint of Your Sales Job

This job analysis is just what its name implies. It is not a course of study for training salesmen, but a blueprint of what master salesmen do and know in the performance of their jobs.

Contents of This Booklet

Understand and follow policies, rules and regulations under which company operates.
Acquire knowledge of company products and services.
Cooperate with other departments.
Sell merchandise inside the yard.
Plan use of time.
Estimate and sketch.
Be a good housekeeper
Keep records and prepare reports.
Keep up with trade and personal improvement.
Care for personal transportation.
Locate prospects.
Sell merchandise outside the yard.
Follow up on sales.
Maintain mental and physical health.
Coordinate job, home and community.

Only 50c a Copy

Order today from

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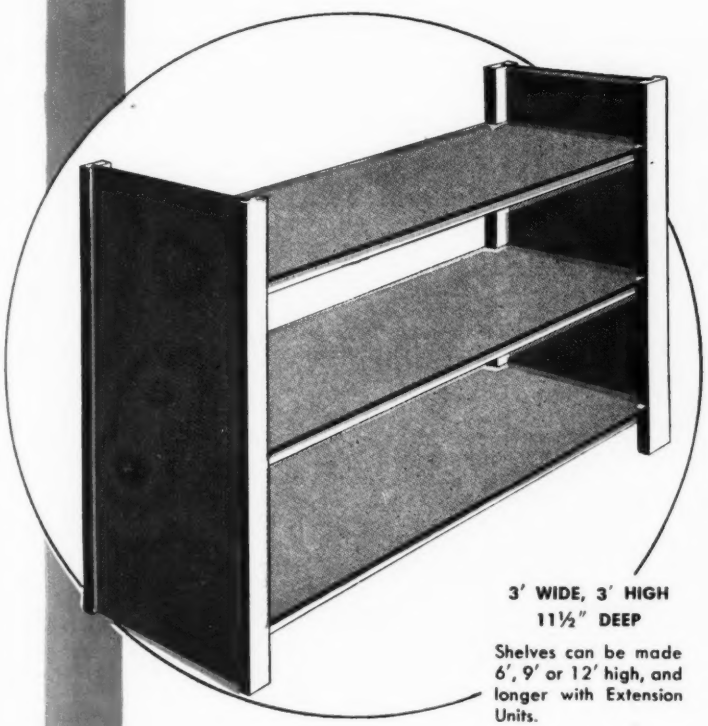
139 North Clark Street, Chicago 2, Illinois

HINES SHELF

THE FASTEST SELLING LUMBER DEALER ITEM ON THE MARKET

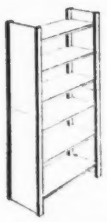


3' WIDE, 3' HIGH
11½" DEEP

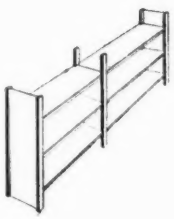
Shelves can be made 6', 9' or 12' high, and longer with Extension Units.

Developed by HINES
Manufactured by HINES
And Proved by HINES
In 23 Retail Yards in Chicago and Suburbs

See the Hines-Shelf at leading lumber dealer conventions and be the first to introduce this handy prefabricated shelf unit to your community. Completely packaged—easy to handle; Ponderosa Pine frame and masonite presdwood shelves go together with new patented hardware. No cutting! No nailing! Ideal for homes, offices, stores and factories —sells on sight and is a good repeater!



"ONE OVER ONE"
combination using two Regular Units



"SIDE BY SIDE"
One Regular Unit and one Extension

"ISLAND DISPLAY"
Two Regular and two Extension Units

EDWARD HINES LUMBER CO.

77 WEST WASHINGTON ST.
CHICAGO 2, ILLINOIS

OFFICES IN PRINCIPAL CITIES

Edward Hines Lumber Co.
77 West Washington St.
Chicago 2, Illinois

Please send me complete information on the Hines-Shelf including complete merchandising plan of action.

DEALER .....

ATTENTION OF .....

ADDRESS .....

CITY ..... ZONE ..... STATE .....

Section 21

Office and Store Equipment

WITH OFFICE and administration costs mounting up to as much as one-third of all costs it is important that efficiency in office equipment, fixtures, systems and supplies be developed and maintained at a high standard.

Adding machines, bookkeeping systems, check writing equipment, etc., effect proportional savings from administrative costs to what car door rollers, conveyors, dollies and material handling equipment effect in yard operating costs.

Accounting systems are available which are specially designed for the lumber and building products merchandiser—systems which will provide the dealer with a monthly picture of his profits department by department.

Office machines can perform the work of one out of three men in a non-mechanized office—and in a one man office save one-third of that man's time!

Dealers may use the following check list of time and labor saving office equipment and supplies:

( ) Adding Machines
( ) Addressing Machines
( ) Adequate Lighting
( ) Autographic Registers
( ) Billing Machines
( ) Bookkeeping Desks
( ) Bookkeeping Machines
( ) Bulletin Boards
( ) Cash Registers
( ) Check Writing Machines
( ) Clerks Desks
( ) Combination Machines
( ) Correspondence Files
( ) Correspondence Stamps (time)
( ) Customer Records
( ) Dictating Machines
( ) Duplicating Machines
( ) Electric Calculating Machines
( ) Executive Desks
( ) Extension Phones
( ) Fans
( ) Forms and Blanks
( ) Inventory Books
( ) Inter-office—Factory—yard communicating systems
( ) Journals
( ) Ledgers
( ) Managerial Files
( ) Pencil Sharpeners
( ) Perpetual Inventories
( ) Postal Scales
( ) Prospect Records
( ) Rubber Stamps
( ) Safes and Strong Boxes
( ) Shipping Counters
( ) Staplers
( ) Statement Machines
( ) Stationery
( ) Storage Files
( ) Tally Books
( ) Tally Pencils
( ) Tally Rules
( ) Time Clocks
( ) Typewriters
( ) Typewriter Desks
( ) Vault Furniture
( ) Water Coolers
( ) Wrapping Counters

While analyzing the efficiency of the office the dealer might check the following "housekeeping" attributes of an efficient office:

( ) Pleasant, cheery, welcoming entrance way.
( ) Bright, clean, polished walls, floors, ceilings, windows.
( ) Orderly, tidy desks and furniture.
( ) Staff attitudes—gracious—eager to please and be of service.
( ) Phone attitudes—prompt, courteous, cheerful, informative, helpful.
( ) Comfortable chairs for those who must wait.
( ) Clean, comfortable retiring rooms for women employees and customers.
( ) Well-lighted exterior with easy to read street numbers.

Tips on Store Management

1. Customers "buy with their eyes"—visibility is the first principle—and a sample of every attractive item should be in clear view of the customer.
2. Merchandise stocked under the counter is not exposed to sale—"under counter" or basement stock is only good as replacement for items sold.
3. Show windows are the "face" of your business. Keep them clean—cheerful—interesting—original—generously illuminated. Show prices plainly. Wash them outside daily—interior each week (when display should be changed, do not use them for display of "slow movers". Put these on a bargain counter. Do not permit posters for operas, shows, or benefits, etc., to take up valuable space. The window is a "silent salesman" and should be kept active all day—and as much of the night as passer-by traffic will warrant).
4. Select window display merchandise with care—only show the best—study lay-out for effectiveness.
5. Change window displays often (weekly)—anticipate or "rush" the seasonal trends.
6. Enlist help from manufacturers in special displays and drives.
7. Constantly compare your sales—or "impulse" appeal, with those of the most successful stores in the community.
8. Visit—inspect—and note unusual methods in successful stores—both as to interior display—and employee attention to the customer.
9. Keep "pace" with the trade trends — handle the "right" merchandise; i.e., what the customer really wants —(do not try to change his buying habits).
10. Instruct sales personnel to build each sale "higher—wider—and thicker" by
    (a) selling related items
    (b) by selling on easy payments
    (c) by including in the mortgage
11. Adopt a one price policy—and support it by
    (a) making "good" on each purchase
    (b) exchanging cheerfully
    (c) money back if exchange is not desired.
12. Keep inventories "fluid" to accelerate rate of "turnover" by
    (a) analysis of duplicate copy of daily sales slips
    (b) record of requests for items not in stock—which should be made by sales clerks and given in daily memos.
13. Instruct each sales clerk to become familiar with related department.
14. Equip each sales department with departmentalized up-to-date price books—covering all departments with delivery schedules for items not carried in stock.
15. Arrange counter displays to prominently feature any items currently exhibited in the show windows.
16. Route cash customers from department to related department through the store.

Section 22

Financing and Insurance

CONTENTS OF THIS SECTION

What Consumer Sales Financing will do for Dealers
The Principal Problems of Dealer Financing
List of Financing Sources
Consumer Benefits in Sales Financing
The Package Mortgage
Tips on Consumer Financing for Salesmen
Typical Mortgage Department Flow Chart
Costs of Home Ownership
How much should the Consumer Spend for a House
Check List of Insurance Problems of the Dealers

For Related Sections See Master Index

Consumer Sales Financing and Installment Credit are more important to the retailer of building products than any other merchant on Main Street—for the simple reason that the average American family expenditure for housing is the largest single item in the budget.

Sixty percent of all automobiles are sold on monthly payments. It is estimated that 69 percent of all furniture, 74 percent of all household appliances and ⅔ of all family purchases of $50.00 or more (other than purchases from lumber dealers) are bought on an installment plan. Lumber and Building Products Dealers have yet to use this tool fully.

The Dealer has scores of items and packages to sell on which the selling price exceeds $60.00 (the customary minimum for refinancing installment paper).

Consumer Sales Financing will do these things for Dealers:

- Facilitate closing of sales
- Increase sales volume
- Lower resistance to price
- Improve cost position
- Attract new buyers
- Give sales control
- Provide control of building trades
- Lower credit losses
- Serve more customers
- Build individual sales higher, wider and thicker
- Facilitate complete handling of consumer needs
- Enable salesmen to sell full list of related items
- Control specifications
- Enlarge specifications to include mechanical appliances
- Keep assets liquid
- Improve effectiveness of advertising
- Lower accounts receivable
- Improve competitive aggressiveness (autos, furs, vacations, etc.)
- Meets competition on equal basis—convenient payments
- Capitalizes on consumer buying habits
- Lowers competitive effectiveness
- Collection annoyances minimized
- Makes "package" selling automatic
- Provides profit on construction labor as well as materials
- Irons out seasonal sales slumps
- Secures a bigger share of consumers' dollars
- Every department of a dealer's business is benefited

The principal problems of dealer sales financing are:

- Home financing for consumers
- Rental home financing
- Construction loans.
- Accounts receivable credits
- Farm Construction Credits
- Specialty sales
- Commercial improvement sales
- Departmental sales
- Refinancing mortgages for additional repairs and improvements
- Financing repair and improvement packages
- Financing consumer sales of $60 or more
- Rediscounting consumer paper
- FHA insured loans

Sources of Financing Services that fill these needs for the dealer:
(If you are not adequately serviced by local, regional or national sales financing agencies, American Lumberman & Building Products Merchandiser will suggest sources of such service.)

- Financing Companies specializing in servicing dealers
- Building and Loan Associations
- Insurance companies
- Commercial banks
- Savings banks
- Mortgage bankers
- Investment bankers
- Private investors
- Farm Security Administration
- Rural Electric Administration
- Farm loan banks

The financing companies who undertake to service your sales will supply:

- All the necessary forms and blanks
- Rate Charts and Tables
- Training for your salesmen and credit men

Financing and Insurance

What Sales Financing will do for consumers:

Enjoy better housing while paying for it
Build an estate
Bring greater security
Savings from improvements often pay for them (insulation and paint)
Cultivate the savings habit
Enjoy independence of landlords
Better citizenship and sound credit standing
Better environment for children
Avoid high moving costs
Save the landlord's profit
Monthly payments as little as or less than rent
Improve credit standing

More than 50% of all monthly payment purchases are made by people who could pay cash but prefer to pay in installments.

The "Package" Mortgage.

Something new under the sun in mortgage financing that has great potentialties for the lumber and building products merchant is the Package Mortgage.

Certain large insurance companies and other mortgage buyers devised a plan where the complete mechanical equipment of a modern home can be included with the land and house in a first mortgage to be amortized over a long period of years.

This means that a home seeking family can enjoy all the needed mechanical conveniences at a monthly payment less than a single appliance would have cost under the former 18 months plan.

The Package Mortgage affords a deal who controls home building sales an immediate and sizable volume for his mechanical departments.

Package Mortgages may include either gas or electric appliances.

Salesmen's Tips on Financing:

Assume the buyer will appreciate convenient terms.

Always quote the monthly payment first on every sales involving more than $60.

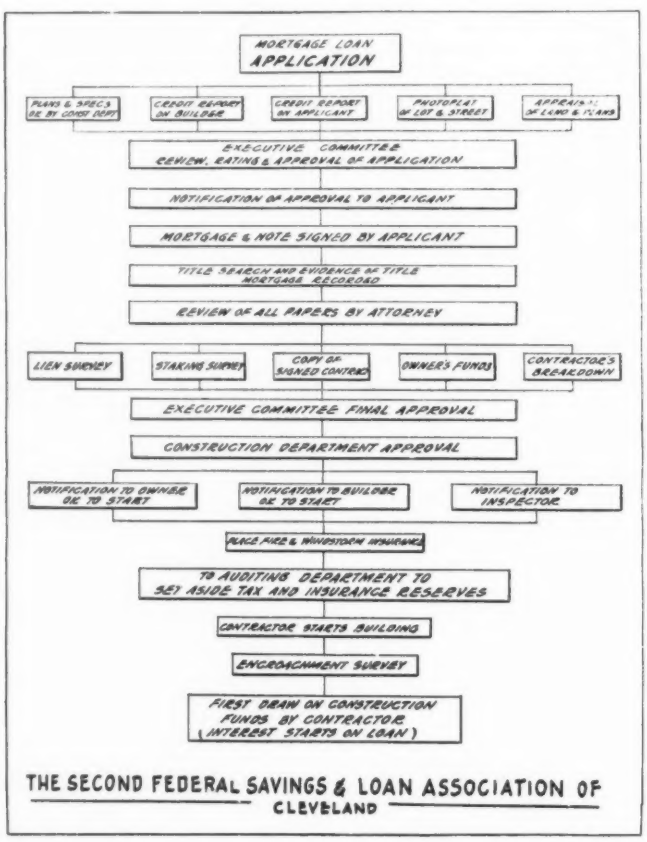
Try to build sales higher, wider and thicker when initial job is small by selling needed related items.

Suggest a down payment on each transaction.

Prepare all credit statements completely at the time the order is secured.

Know F.H.A. procedure thoroughly and keep abreast of changes in regulations.

MORTGAGE DEPARTMENT FLOW CHART


MORTGAGE LOAN APPLICATION
PLANS & SPECS OK BY CONST. DEPT.
CREDIT REPORT ON BUILDER
CREDIT REPORT ON APPLICANT
PHOTOPLAT OF LOT & STREET
APPRAISAL OF LAND & PLANS
EXECUTIVE COMMITTEE REVIEW, RATING & APPROVAL OF APPLICATION
NOTIFICATION OF APPROVAL TO APPLICANT
MORTGAGE & NOTE SIGNED BY APPLICANT
TITLE SEARCH AND EVIDENCE OF TITLE MORTGAGE RECORDED
REVIEW OF ALL PAPERS BY ATTORNEY
LIEN SURVEY
STAKING SURVEY
COPY OF SIGNED CONTRACT
OWNER'S FUNDS
CONTRACTOR'S BREAKDOWN
EXECUTIVE COMMITTEE FINAL APPROVAL
CONSTRUCTION DEPARTMENT APPROVAL
NOTIFICATION TO OWNER OK TO START
NOTIFICATION TO BUILDER OK TO START
NOTIFICATION TO INSPECTOR
PLACE FIRE & WINDSTORM INSURANCE
TO AUDITING DEPARTMENT TO SET ASIDE TAX AND INSURANCE RESERVES
CONTRACTOR STARTS BUILDING
ENCROACHMENT SURVEY
FIRST DRAW ON CONSTRUCTION FUNDS BY CONTRACTOR (INTEREST STARTS ON LOAN)

THE SECOND FEDERAL SAVINGS & LOAN ASSOCIATION OF CLEVELAND

COSTS OF HOME OWNERSHIP

The costs of home ownership vary greatly and can be shown only in a general way. The figures given here will not be exact for any particular case, but they may serve as useful examples.

Amortization Costs: Most loans will run from ten to twenty years, though many agencies will let you pay off at a faster rate if you so desire. Interest rates on amorized loans vary in the United States. The table below shows amortization costs for $1000 at several different interest rates and periods of payment.

Taxes: You can find out your present tax rate from your community officials. These rates vary in different localities. Special assessments for civic improvements may be added to your tax bill.

Insurance: Lending agencies or mortgage holders require you to carry fire, wind and other hazard insurance on your property in order to protect their equity (share in the investment).

Your policy should carry enough additional insurance to protect your own equity. Your local insurance agency will give you the information which relates to your case.

Some loan plans provide for the combined payment of amortization costs, taxes, and insurance in each scheduled installment. In any case, these costs must be met when due.

Upkeep: On new homes, maintenance costs will be small for the first few years but they will become greater as the house grows older. Over a period of years, you will want to install improved equipment and other new conveniences as they appear on the market. When buying an older house, you should allow a greater sum for upkeep.

Illustration of Total Costs: Let us assume for an illustration that the costs of taxes and assessments are $18; insurance $3; and upkeep $20 per year for every $1000 of the total value of a home. The following table would then be an example of total home ownership costs per $1000 at various amortization rates (fractions omitted).

Amortization costs in this table are fixed according to the interest rate and the period of payment. Insurance cost is relatively constant. Costs of taxes and upkeep are variable, and may differ in your case. They have

Interest Rate:	At 4 Per Cent			At 5 Per Cent			At 6 Per Cent		
Payment Period (years):	10	15	20	10	15	20	10	15	20
Cost of Amortization:	$122	$89	$73	$127	$95	$79	$133	$101	$86
Taxes and Assessments:	18	18	18	18	18	18	18	18	18
Insurance:	3	3	3	3	3	3	3	3	3
Upkeep:	20	20	20	20	20	20	20	20	20
Total Annual Costs per $1000:	$163	$130	$114	$168	$136	$120	$174	$142	$127

Cut accident costs

WITH EMPLOYERS MUTUALS

24-HOUR PROTECTION FOR WORKERS

"How can I pay for the operation? Doc says Johnny has to have his appendix out."

"Mary in the hospital with pneumonia—what will it cost? And where's the money coming from?"

With his mind in a turmoil, no man can focus attention on the job at hand. He forgets caution, neglects safety rules, moves more slowly. Anything can happen.

Our safety engineers showed us the relation of off-the-job financial worries to accidents on the job. They understood that the human mind just won't function normally when worry moves in.

Time and again they traced an accident to a man beset with off-the-job worries. That's why we added group health insurance to all the other coverages we offer industry—an added protection against accidents.

We selected the best features of existing group plans. Our long experience with the problems of industrial policyholders helped us develop a program especially to meet their needs.

Employers Mutuals group accident, health, and hospitalization supplements your workmen's compensation insurance. Together they provide 24-hour protection —for you, your employees, and their dependents.

24-hour protection makes your employee a better worker—who is more efficient, has fewer accidents, and produces more.

E-M SAFETY ENGINEERING
...outgrowth of long experience with industry

Our safety work was started when the company was founded, to reduce workmen's compensation losses in industry. Serious accidents were the order of the day. Our engineers went into the field to find out how to prevent them.

They developed a dramatically successful program. Accident rates dropped. The cost of insurance to the policyholder went down.

Our engineers start with a complete survey of hazards, by specialists on various machines, ventilation experts, hygienists, chemists, industrial nurses. A complete program is recommended.

We help set up an educational program, organize regular safety meetings to make safety understandable to workers. Literature, posters, lectures, and films are supplied. Periodic reports are submitted which analyze accidents, their cost and their effect on compensation rates.

Close association with industrial problems has given us unusual skill in analyzing the protection required, and helps us write each policy with more than ordinary care to protect the interests of the policyholder.

E-M Insurance is Understandable

Our representative will help you understand insurance . . . analyze your requirements . . . explain how our safety engineers can help you cut down accidents to reduce your costs. He will explain the many features of our group health insurance which protects your employees 24 hours a day.

Or write—on your business letterhead, please —for complete information on any of these subjects. We will include a free copy of "A Dictionary of Insurance Terms" to help make insurance understandable. Address: *Insurance Information Bureau, Employers Mutuals of Wausau, Wausau, Wisconsin.*

MPLOYERS MUTUALS WRITE:

blic Liability . . . Automobile . . . Plate ass . . . Burglary . . . Workmen's Compen- ion . . . Fidelity Bonds . . . Group Health, cident, Hospitalization . . . and other casu- y insurance . . . Fire . . . Tornado . . . Ex- ded Coverage . . . Inland Marine . . . and ed lines of insurance. All policies are nassessable. Branch offices in principal es. Consult your telephone directory.

EMPLOYERS MUTUALS of WAUSAU

. . . MAKE INSURANCE UNDERSTANDABLE

EMPLOYERS MUTUAL LIABILITY INSURANCE COMPANY OF WISCONSIN Established 1911

EMPLOYERS MUTUAL FIRE INSURANCE COMPANY Established 1935

Home Office: WAUSAU, WISCONSIN

been conservatively estimated here because experience has shown that too many people overfinance by not allowing enough for these items. Adjustments may be made in the table where modifications are definitely known.

HOUSING COSTS AND THE FAMILY INCOME

No definite formula can be given to figure out exactly how much a family can spend for a home. However, after considering all the costs of home ownership, you can arrive at a practical estimate.

HOW MUCH SHOULD YOU SPEND FOR A HOME?

If you can plan a family budget and fill in the blanks below, you will arrive at a practical estimate of the amount you can spend for a home. The costs can be figured either monthly or yearly.

Food and Clothing...$....	Total Income .....$....
Utilities and Fuel...	Minus Income-tax and
Medical Care	Retirement Benefits ....
Life Insurance	
Other Necessary Family Expenses	
Recreation	Total Net Income.... ....
Car	Minus Total Living
Total Living Expense .....$....	Expense ....
	*Income for Housing.$....

The table below includes all but preliminary costs of housing. It is figured on the basis of the "Illustration of Total Costs" on page 3. To use the table, find your own "Income for Housing" in either the monthly or the yearly column below. Then read across to the vertical column which gives the terms of your loan. The figure arrived at will be approximately the value of the home which you can afford. Your "Income for Housing" will amortize your loan and still pay for taxes, upkeep and insurance. Add to this the amount of the down payment which you can make and you will have a practical estimate of the total property value of the home you can afford, including house and lot.

INSURANCE

The variety and complexity of laws and regulations, local, state and national, concerning insurance, social security, employers' liability, etc., make it a physical impossibility to write even a brief treatise that will fit each reader's problems.

It is recommended that each dealer have a semi-annual check up with his own or his association's lawyer on such problems.

Liability, casualty, surety and insurance companies serving the dealer are also a source of valuable information.

However, the following check list indicates a few of the problems in this field.

Insurance required by mortgage finance companies.
Insurance required by Installment Credit companies.
Group Liability Insurance.
Group Life Insurance.
Hospitalization.
Insurance contractors used on light construction projects.
Riot, airplane damage and civil commotion insurance.
Auto and trust insurance.
Fire insurance.
Tornado insurance.
Public liability.
Plate glass insurance.
Workmen's Compensation.
Burglary insurance.
Use and company insurance.
Casualty insurance.
Fidelity and Surety bonds.
Job completion bonds.

The placement and control of this business gives the dealers an extraordinary goodwill building opportunity.

The following table shows amortization periods and monthly payments required for certain size loans from a Savings and Loan Association.

SIZE OF MONTHLY PAYMENTS

(Monthly reserve for taxes and insurance in addition)

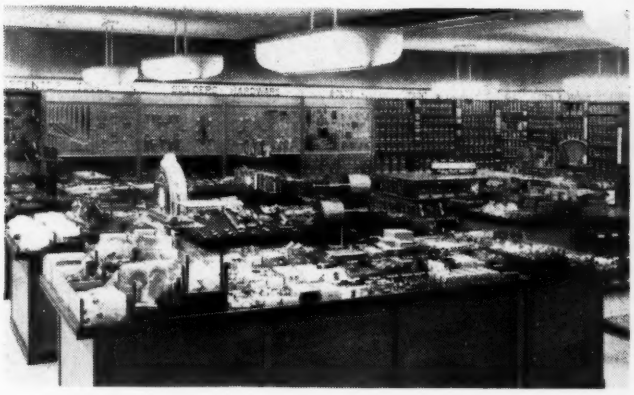
Amount of Loan	10 yrs.	15 yrs.	20 yrs.	25 yrs.
$1,000	$10.36	$ 7.65	$ 6.33	$ 5.56
1,500	15.55	11.47	9.49	8.34
2,000	20.73	15.30	12.65	11.12
2,500	25.91	19.12	15.82	13.90
3,000	31.09	22.95	18.98	16.68
3,500	36.27	26.77	22.14	19.46
4,000	41.46	30.60	25.31	22.24
4,500	46.64	34.42	28.47	25.02
5,000	51.82	38.25	31.63	27.80

★INCOME FOR HOUSING		VALUE OF HOME WHICH INCOME FOR HOUSING WILL FINANCE									DOWN PAYMENT (Fill In Below)	TOTAL AMOUNT YOU CAN SPEND FOR A HOME
		At 4 Per Cent			At 5 Per Cent			At 6 Per Cent				
Monthly	Annual	10 Years	15 Years	20 Years	10 Years	15 Years	20 Years	10 Years	15 Years	20 Years		
$ 15	$ 180	$1110	$ 1380	$ 1580	$1070	$ 1320	$ 1500	$1030	$ 1270	$ 1420		
20	240	1470	1850	2110	1430	1760	2000	1380	1690	1890		
25	300	1840	2310	2630	1790	2210	2500	1720	2110	2360		
30	360	2210	2770	3160	2140	2650	3000	2070	2540	2830		
35	420	2580	3230	3680	2500	3090	3500	2410	2960	3310		
40	480	2940	3690	4210	2860	3530	4000	2760	3380	3780		
50	600	3680	4620	5260	3570	4410	5000	3450	4230	4720		
60	720	4420	5540	6320	4290	5290	6000	4140	5070	5670		
80	960	5890	7380	8420	5710	7060	8000	5520	6760	7560		
100	1200	7360	9230	10,530	7140	8820	10,000	6700	8450	9450		
125	1500	9200	11,540	13,160	8930	11,030	12,500	8620	10,560	11,810		

This table will help you to arrive at a beginning figure only. ***Consult a reliable lending agency and consider your own modifying factors.*** For example, if less than $20 per year per $1000 is required for upkeep, the difference may be treated as an increase in available "income for housing." ***Remember that the down payment reduces amortization cost, but adds to the total value of the home*** This increases the cost of taxes, insurance and upkeep, which must be paid from income for housing. For small down payments the difference is unimportant; for large down payments it is considerable. On the basis of figures used for the table, each $100 down payment requires about $4 more *annual* income for housing to pay for taxes, insurance and upkeep on the additional property value.

Section 23

Selling and Promotional Aids



The complexity of departments and items in a modern building department store necessitates thorough and continuous study of the problems of advertising, display and store functioning.

The *location* of impulse merchandise, counters and islands can increase or decrease cash sales of carry away items by as much as 40 percent.

Displays start with the windows and entrances. Is the passing public and approaching customers greeted with saleable, seasonable merchandise effectively displayed?

Is the eye caught and arrested as the customer enters the store? If the customer must wait can he browse through intriguing merchandise and interior displays? When possible, do displays illustrate how products are used?

Are the interior signs clear and understandable? Is informative literature handy? All carry-away merchandise clearly price tagged?

The following check lists may be helpful in analyzing the efficiency of the sales and display rooms.

Selling aids which may be utilized:

( ) Animated Displays
( ) Display Islands
( ) Display Units
( ) Easi-Built Patterns
( ) Electrical Signs
( ) Estimating Systems
( ) Flashing Signs
( ) House Models
( ) House Plans
( ) Illuminated Signs
( ) Island Merchandisers
( ) Island Trays
( ) Merchandising Cabinets
( ) Mobile Displays
( ) Neon Signs
( ) Plan Books
( ) Sample Cabinets
( ) Spot Lights
( ) Streamers
( ) Talking Displays
( ) Wall Cabinets
  ( ) Glass Shelved
  ( ) Steel
( ) Wall Merchandisers
( ) Bulletin Display of Current Ads
( ) Before and After Pictures (mounted)
( ) Farm Plan Service
( ) Film Projectors
( ) Manufacturers Data Sheets
( ) Manufacturers Literature
( ) Mark-up Calculators
( ) Mounted Pictures of Beautiful Homes and Farm Buildings Sold
( ) Percentage Calculators
( ) Professional Advertising Counsel
( ) Promotional Films
( ) Prospect Files
( ) Territorial Maps
( ) Testimonial Files
( ) Training Courses
( ) Training Films
( ) Visual Letting Aid

Dealers are urged to secure and make use of these sales-and-profit builders.

HOW TO BOOST SALES AND INCREASE YOUR EARNING POWER

—No matter what you have to sell!

Whether you own your own yard—operate as an outside salesman—or sell over the counter—this article is written especially for you.

Its purpose: (1) to give you a more accurate idea of the kind of competition that lies immediately ahead of you—both inside and outside your industry; (2) to show you how to sharpen your selling tools to combat competition; (3) to show you specifically how to put your own advertising, your manufacturers' advertising and promotional material to the best possible use **to make your job easier;** (4) to help you boost volume and unit sales, increase your income.

Right ahead of you lies a sales opportunity that's bigger than ever before. And because it **is** bigger than ever before, competition will be tougher than ever! Some of you will make the most of your chance to plan and train now, to run it top sales position tomorrow. Others will fail. But the same sales opportunity lies ahead of every retail store owner and every salesman in the country today.

The kind of salesmanship and the kind of advertising needed to win the battle for today's expanding markets is **the kind that gets out and digs!**

To quote one of the biggest and most experienced ad agencies in the country, "The manufacturer (or retailer) whose advertising fails to get out and dig, no matter how good the product, may well **lose sales position in the middle of plenty!**"

Here is **why** you have to do a harder, more intensive, more imaginative selling job than ever before. Again quoting the same authority, "New methods, new products, new materials, new packages and new names have already come into being . . . and Mr. and Mrs. Homemaker will have a greater choice, greater variety, better quality than ever before."

Another factor that's going to catapult you into top sales position or put you down at the bottom of the heap, in the next few years, is **personal service.**

Prior to the war, larger and larger segments of the buying public became conditioned to ingenious new services, along with even the most modest purchases. Having had to forego the luxury of those accustomed extra services all during the war, the public is particularly avid for them now. Moreover, today's customers **expect** them; and the farther we get away from the war years, the more your customers are going to expect those "plus" services.

Nobody expected super service six months after V-J

Day. Nobody got it. One year after the war's end, people were still willing to put up with curtailed service. Today—almost two full years after V-J Day—they find it difficult to understand why most services are not yet up to pre-war standards, or even better. Remember, too, the public no longer feels any patriotic compulsion to be sporting about it.

The smartest yard owners today are those who are training every employee, experienced and inexperienced, to higher standards of service instead of waiting for competition to force them into it.

The smartest outside salesmen today are those who show a genuine personal interest in all their prospects . . . the ones who leave their customers with a deep-rooted conviction that they are "service-conscious" rather than "commission-conscious."

The smartest inside salesmen are those who go out of their way to show their customers friendly, **interested** attention . . . are quick to give them courteous, **helpful** service.

The only way to meet and beat tougher-than-ever competition is to get tough with yourself . . . really tough. Ask yourself, "Am I merely a warehouseman, or am I first and always a super salesman . . . the kind who can sell rings around car dealers, department store and home appliance salesmen?"

If you are just taking orders for items currently in stock and turning them down on items out of stock—simply selling so many cans of paint or so many square feet of wallboard—then the public will regard you as a warehouseman, nothing more.

If you are selling the end use of your product—more attractive walls or better space-planning for example—then you are doing a **creative** selling job. If you are brushing up now on **scientific** selling methods in a buyers' market—and making the most of your advertising and merchandising aids—then, and only then, can you qualify as a super salesman ready to meet competition on any ground.

Correctly understood, advertising can never replace personal selling. Only **you** can determine what the individual prospect's individual reservations are to your products; and only **you** can overcome those individual reservations.

What advertising does do is sell the public on the dealer's products and services, develop new leads, bring in new prospects, open the door for personal selling. For these reasons, a very vital part of every salesman's campaign is the use to which he puts his company's advertising and promotional material. Makes no difference whether he pursues sales outside or behind the counter. The same thing is true.

The best-informed salesmen are those who make it their business to keep posted both on their yard's advertising and their manufacturers' campaigns. Then when a prospect asks about "that cute game room I saw in the Saturday Evening Post" or "the roofing you featured in the newspaper a few weeks ago," you can come back with the right answer **fast.**

A careful study of all advertising and publicity released on your products should also net you many valuable new selling points. When you're sure you know your product inside and out, that's the time to be careful! That's when it's easy to overlook new selling angles, new psychological appeals and approaches. Easy, too, to overlook some of the tested approaches you had to shelve during the war. So comb those ads and publicity releases for pre-war selling points you may have forgotten and new salesmaking twists on "the same old story."

And while you're at it, a word of caution. Never judge your company's advertising on the basis of its personal appeal to you. Remember, it is designed to do a job on the reading public. How it does that job is not the point, but how **well** . . . how **well** it paves the way for you and how **many** leads it brings in.

One way you can make advertising and promotional material work for you is to mail out copies to your prospect list in advance of personal calls. Then walk in with the identical ad or brochure in your hand. Immediately, this identifies you both with your company and your product, helps you to get off to a faster, friendlier start.

This technique has opened the door for many an outside salesman. It is particularly effective when you mail out not only your own company's ad but a proofsheet of a national 4-color ad as well. Remember, it is not unusual for such ads to cost the manufacturer as much as $12,000 apiece. And if they're worth that much to him, they must have something on the ball . . . something that will help you. Upon written request, most big manufacturers will be glad to send you as many advance or current proofsheets as you need.

Booklets and advertising proofsheets are also valuable in following up customers . . . especially when you "personalize" such material. This can be done simply by taking a red pencil and underscoring or circling some point you want to bang home hard—or by indicating it with an arrow.

Also, try penning in a short note on booklet covers or ad margins such as, "Think this answers you question?" or "Isn't this what your wife had in mind?"

This same strategy can be used to get good readership when sending our your booklet cold. Try penning a provocative note on the front cover such as, "Be sure to see page 3"—and sign it "Bill" or "Joe." Almost everyone knows a couple of Bills or Joes—will invariably turn to page 3 out of sheer curiosity. From there on, you have them.

Another way to make the most of advertising and promotional pieces is to send them out to local banks and savings and loan associations with a friendly personal note. Keep executives of such organizations up to date on what you are doing and sooner or later your mailings will pay dividends in the form of profitable new leads.

Inside salesmen should also make it a point to use product booklets and other promotional aids to selling. One of the best ways to capitalize on such material is to build a special display rack for it with appropriate headings lettered on each slot FHA Financing, Insulation, New Homes, Redecorating—or whatever subjects your booklets are on.

Then make your literature rack the focal point of a "Browsing Corner"—furnished with comfortable chairs, an attractive table and good light—where people can help themselves to information and linger over plan books. Above your display rack, mount blow-ups of your best ads—and on either side, flank it with samples of your materials.

Blow-ups of your ads and proofsheets of 4-color national ads can also be used to attract more attention to your displays, both in the window and on the floor. Either they can be mounted directly on samples of materials such as wallboard, or mounted on poster board. Every yard should have at least one inside salesman whose job it is to arrange such tie-ins and keep them on a current basis.

Inside salesmen should also be alert to hand out booklets that promote "companion sales." For example, if you're wrapping cans of paint, stick in folders on wallboard and wallpaper. If the customer picks up a booklet on linoleum for her kitchen, make sure she gets one on washable tileboard and cabinet units. Then one good sale may lead to another.

Another good will builder and salesmaker is a scrapbook containing copies of all your ads. A looseleaf scrapbook is best, alphabetically indexed for quick reference. You'll want it first so you can answer any inquiries about recent or current ads.

Your adbook can also be put to good use when you have to keep customers waiting. A friendly invitation to leaf through it will usually be accepted, to make the time pass more quickly. And while you're waiting on another customer your ads can do a selling job for you.

Never underestimate the power of the printed word. It can't replace personal selling; but it **can** pre-sell the public on you and your company—it can identify you and your yard with nationally-known products backed by nationally-known concerns—and remember it constantly reminds the customer of his needs and **you.**

Put those selling aids to work selling for you—and be ready for sharper competition today and tomorrow!

PROSPECT CONTROL POINTS PROFIT PROGRAM

By WILLIAM KUNTZ, Vice-President

Peter Kuntz Lumber Company, Dayton, Ohio

A certain proportion of prospects will buy regardless of what we do or do not do in the way of systematic prospect development and control. They are no problem, for, to all intents, they walk in with money in their hands and an unswerving determination to spend it. Normally, there are not enough of them to support a business. That is why we have not relaxed our use of our prospect control record. We do not want to be soft when selling gets hard again. Like everybody else, we realize that the last long building cycle ended in 1926, and we expect that we shall find we have entered another by now. Nevertheless, we figure that merely because there is an enormous need for residential and commercial construction which has been buiit up over the last twenty years and accentuated by population shifts and dislocations during the war neither we nor any other lumber dealer has a guaranteed future. All we have is a favorable climate for sales. Whether we or a competitive dealer get the business from any particular prospect depends to a large extent on whether we or the other fellow put on the more aggressive and business-like campaign to convince that prospect of our ability to deliver good products promptly at fair prices.

We figure that a prospect is spending his money. He has no obligation to spend it with us rather than with one of our competitors. If we want and deserve his patronage, it is up to us to prove to him that it is in his own interest to do business with us. That means that we must show a continuing, intelligent interest in him and his construction project and show him how and why our products and our service will help him realize his purpose. To do this selling job, we have to have organized facts and orderly procedures.

Our prospect control record is the tool we use to organize our knowledge of prospects and to control our own sales operations so as to develop prospects into profitable and satisfied customers. It is valuable to us because it helps us to do the right things at the right times among the right people. Without it, it would be easy to go along forgetting important details or neglecting necessary follow up calls. It protects us against lapses of memory and omissions of detail that make the difference in many cases between a closed and a lost sale.

This record is neither costly nor complicated to maintain and use. We are convinced that it pays for itself many times over in added volume that we get which we might otherwise lose. As building materials become more abundant and competition gets keener, we are sure it will become even more profitable to us.

Our record is set up in Kardex 6" x 4" pockets, one pocket for each prospect. The reason for our choice of Kardex rather than a vertical file for this record is that Kardex keeps pertinent information before us on the visible margin of the card in each lower pocket and it enables us to use movable signals to bring out important changing information—the action facts that are the basis for management-by-exception. The call that is made too late, because it was forgotten at the proper time, might better have been left unmade. The call that is remembered and made on time often pays off. Signal control picks out the prospects who must be called upon while there is yet time to plan and schedule calls. The prospect who must be called on today is an exception who deserves attention. Signal control picks him out. Hence, attention is focussed where it can pay in sales, and time is not wasted in looking for something to do or in doing the things that are not of immediate importance. Instead, we manage by picking out the exceptions and concentrating our thought and effort on them to get business from those who are able, willing, and ready to act.

We use a buff master card in the lower pocket which shows the name and street address of the prospect. It also has a 1-31 scale which is used with quarter-inch colored Kardex signals to indicate the next follow up date. By checking visually we can spot the prospects who should be called upon today. The cards are filed alphabetically, which is entirely practical because the signals pick out the currently active prospects just as if they were filed chronologically by follow-up date. These cards kept in the lower pocket have a turned up stub which is die punched with a circular hole. The purpose of these holes is to allow us to see whether a duplicate of this card printed on salmon stock which is the salesman's working card is in file or out. If a salmon stop appears, the card is in file. If not, then follow up of the salesman is in order to make sure the call due is made and that a report of results is obtained.

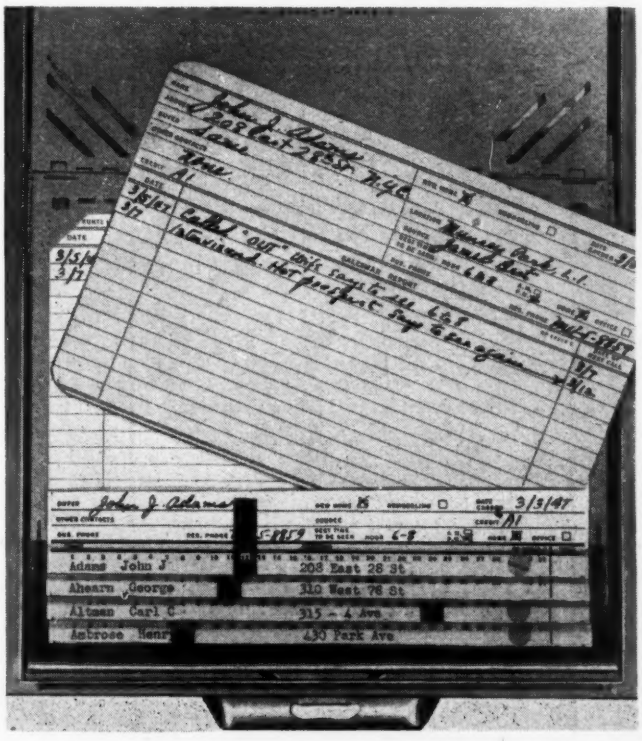
The body of the card shows the nature of the construction planned by the prospect and gives necessary identifying and address information to facilitate contacts. The larger part of the card is a summary record that shows when calls have been made, what happened, and when the next call is scheduled.

The salmon duplicate of this card is the salesman's copy. Each day the cards representing prospects upon whom calls are due are stripped from the pockets and given the salesmen. As soon as they are returned, they are reviewed by the sales manager and the next step to be taken is planned. The cards are then returned to the Kardex file and the follow-up signal is reset to the next call date. If a salesman does not make a call and return a report on his salmon duplicate card, the absence of that card is immediately apparent because no salmon circle shows through the die cut. Each morning such missing cards are noted and the salesman followed to see that the calls are made and reports are rendered promptly.

This simple system takes little time and almost no effort. The clerical work involved is only a matter of preparing a card when a new prospect is located, transcribing brief notes about progress from the salmon salesman's card to the buff master card, and resetting a movable quarter-inch signal. Simple as it is, it is highly effective. It enables salesmen and sales manager to know at all times by signal inspection and reference to a single point:

1. Who our prospects are;
2. When calls are due on them;
3. What progress we are making in closing business;
4. What and how many calls must be made today, tomorrow, and on any other date; and
5. Which prospects are being seen today, and why.

From this record it is very easy to draw off reports on the number of prospects we are cultivating and to distribute them fairly among salesmen. By studying the cards representing closed prospects—whether we got or lost the business we can and do spot weaknesses in our sales procedures that we correct as quickly and as thoroughly as possible.



Built for Big Timber – and Big Production

A Few of Its Features

- Heavy Duty Headblock Bases with Reversible Wearing Plates.
- Split Knees with 15 Point McDonough Boss Dogs.
- Machine Cut Steel Racks and Pinions.
- Double Acting Setworks with Machine Cut Steel Ratchet Wheel.
- Power Receder or Spring Receder.
- Steel Carriage Wheels on Roller Bearings.
- Steel Rope Feed Gear and Pinion.
- 20-lb. "T" Rail Track, one rail of which is machined for Guide Wheel.
- 3 7/16" Mandrel on Heavy Duty Ball Bearings.
- Heavy Duty Husk with fast 8" Belt Feed.

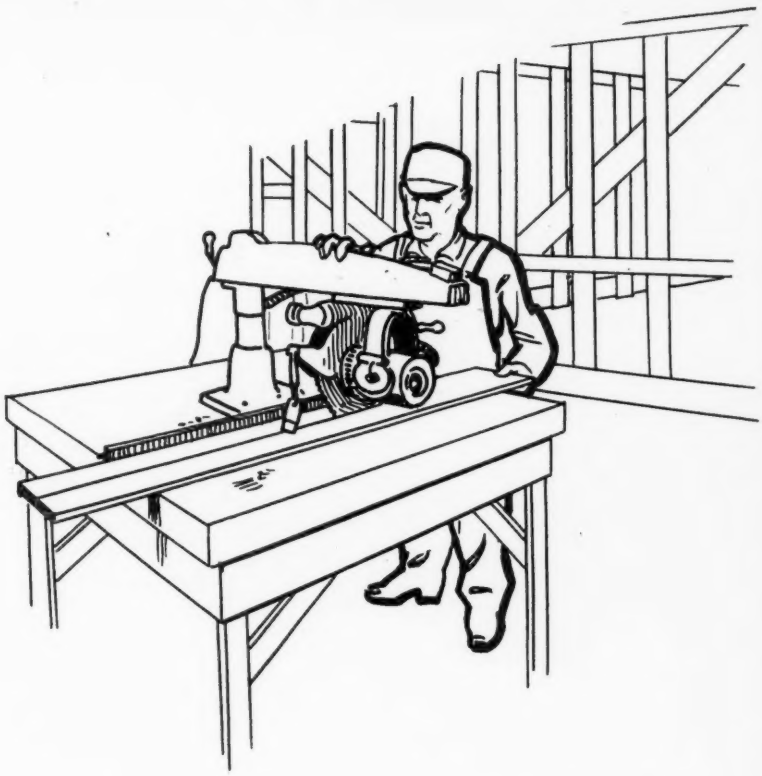
Here is a "big timber" mill—designed to operate in forests, and capable of producing 25,000 to 35,000 feet of fine lumber every day. Yet it is easily portable—may be moved to a new mill site in a couple of days' time. Much larger and a great deal more rugged than conventional types of portables, it has all the good features of a permanently set mill.

Headblocks open to 48 inches. Can be supplied with or without Top Saw Rig. Send for complete information.

CORINTH MACHINERY CO.
CORINTH, MISSISSIPPI

Section 24

Machinery & Equipment



A survey of management thinking in American business would unquestionably reveal Distribution Cost Reduction as one of the top drawer post-war problems.

One of the fastest growing post-war businesses is that of materials handling equipment. Several hundred manufacturers of such equipment held a convention last month at Cleveland, which opened the eyes of American industry to the probabilities of savings in the efficient handling of materials.

So materials handling Cost Reduction should now rank alongside of Production Cost Reduction in the minds of the dealer with yard and shop problems.

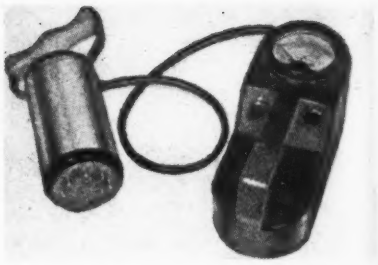
With the idea of providing the dealer an opportunity to check his own equipment we have listed some of the less familiar items of yard and shop equipment that might contribute to operating cost savings and extra profits.

As the dealer analyzes these items in connection with his individual operations he might well consider the point that many of the manufacturers of these products do not have local sales offices and that many of the following items (viz fire extinguishers) might well present a *sales opportunity* as well as an *operating cost reducer*.

( ) Automatic Saw Filers
( ) Band Resaws
( ) Band Saws
( ) Belt Feed Saw Mills
( ) Benches
( ) Bins
( ) Car Door Rollers
( ) Car Movers
( ) Carrying Cranes
( ) Chain Saws
( ) Chipper Knives
( ) Circular Saws
( ) Concrete Block Machines
( ) Conveyors:
( ) Gravity
( ) Push Bar
( ) Slat
( ) Wheel
( ) Cut-off Saws
( ) Dirt Moving Tools
( ) Drawer Units
( ) Dry Kilns
( ) Electric Drills
( ) Electric Saws
( ) Fire Extinguishers
( ) Fire Fighting Equipment
( ) Friction Feed Saw Mills
( ) Gasoline Chain Saws
( ) Grab Hooks
( ) Gauges
( ) Hammer Stamps
( ) Hack Saws
( ) Jointer Knives
( ) Key-Hole Saws
( ) Knives
( ) Load Binders
( ) Lockers
( ) Machine Knives
Material Handling Equipment:
( ) Fork Trucks
( ) Hydraulic Hoist Trucks
( ) Lift Jacks
( ) Lift Trucks
( ) Load Lifter Hoists
( ) Mobile Cranes
( ) Package Lumber Pilers
( ) Pallettes
( ) Skids
( ) Skips
( ) Steel Platforms
( ) Moisture Registers
( ) Planer Knives
( ) Pneumatic Saws
( ) Portable Saw Mills
( ) Radial Power Saws
Radial Woodworkers for:
( ) Bevelling
( ) Cross Cutting
( ) Dadoes
( ) Mitering
( ) Ploughing
( ) Rafter Cutting
( ) Ripping
( ) Routing
( ) Tenons
( ) Rotary Saws
( ) Saw Mills
( ) Scroll Saws
( ) Shelving
( ) Shop Desks
( ) Shop Furniture
( ) Slip Hooks
( ) Steel Strapping
( ) Stock Carts
( ) Storage Units
( ) Straddle Trucks
( ) Tool Room Equipment
( ) Tractors
( ) Trailers
( ) Tree Shears
( ) Trucks Heavy
( ) Trucks Light
( ) Veneer Knives
( ) Wardrobe Cabinets
( ) Wire Enclosures
( ) Woodboring Tools
( ) Woodworking Vises

Completely explanatory literature may be had from the manufacturers of above items. See Purchasing Directory or write American Lumberman & Building Products Merchandiser.

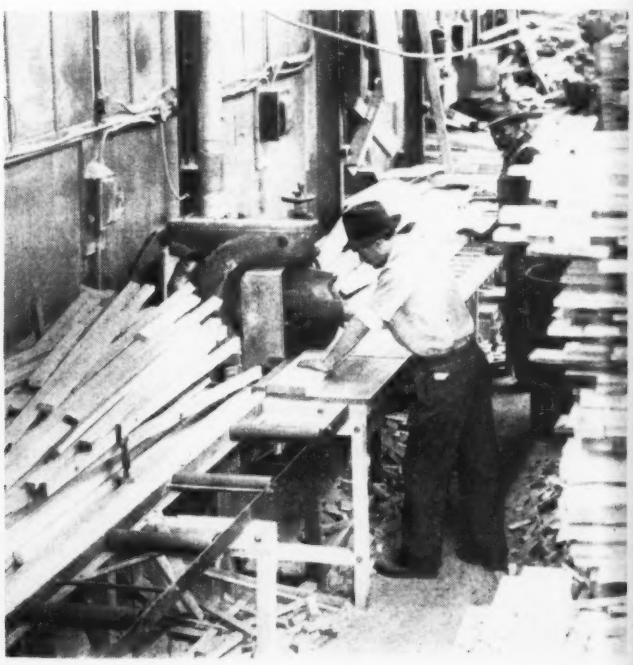
Illustrating a typical heavy duty truck for economic hauling of maximum footage. Required by dealer with heavy tonnage of lumber sales. Roll-off bodies add to efficiency.



Moisture Registers too are a "must" under today's buying conditions. They will save many an argument—and dollars!

Illustrations of Typical Installations of Plant, Yard, Mill and Shop Machinery Equipment

The more small mill lumber a dealer finds it profitable to handle, the greater the need for planing, sanding, matching, resawing and other woodworking machinery.



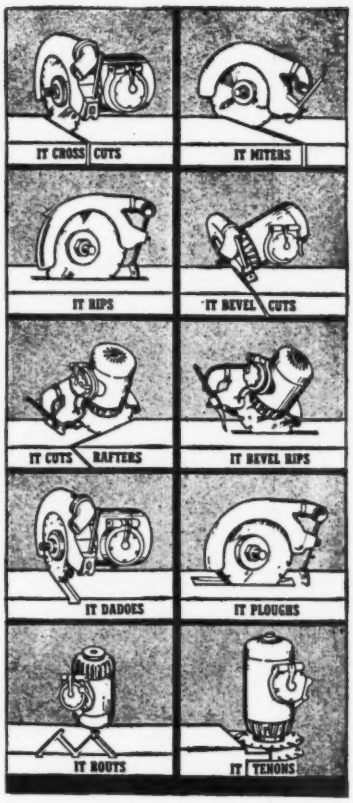
Dealers who have made modest dry kiln investments vouch for savings and extra profits in buying and selling transactions that would otherwise have been lost.

MULTIPLEX

ODEL 50-A
rdial-Arm Saw
MULTIPLEX
50-A
BBET PLOW • JOINTING • CIRCLE ROUTE
ROUTE • PANEL RAISING • TENONING

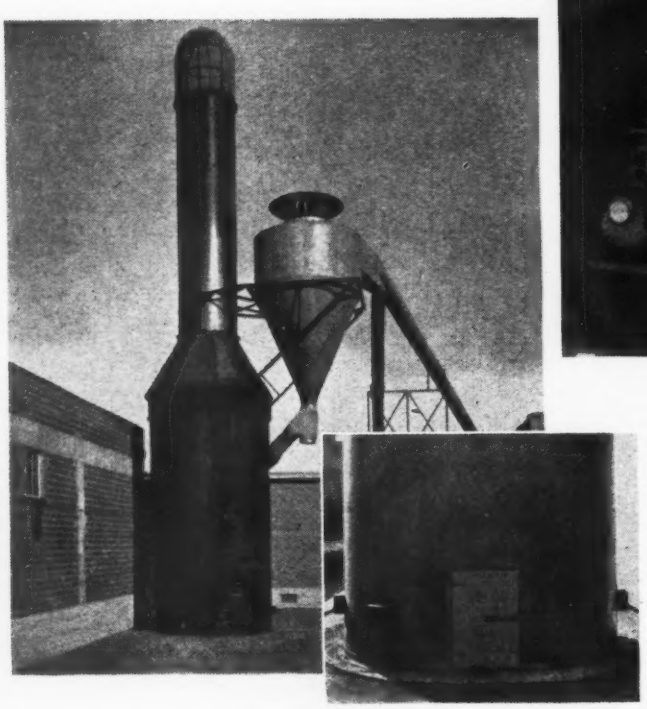
Machinery & Equipment

Among the most popular displays at recent dealer conventions were those of lift trucks, straddle trucks and materials handling equipment. The dealer out to reduce costs will investigate these.



Almost human versatility is secured through the use of radial arm saws and power tools. A yard is not "modern" today without them.

Unusual demands on hauling equipment are made by the new techniques of sectional and unit fabrications.



An engineered installation of mill exhausts, refuse incinerators, dust and shaving collectors will pay their way in cost savings—and prevent fires too!

DIRECTORY OF ASSOCIATIONS

RETAIL ASSOCIATIONS

NATIONAL RETAIL LUMBER DEALERS' ASSOCIATION

1713 Rhode Island Ave., N. W., Washington 6, D. C.

H. R. Northup, secretary-manager

Arizona Retail Lumber & Builders Supply association: Chris Totten secretary-manager, Luhrs building, Phoenix.

Arkansas Association of Lumber Dealers: E. DeMatt Henderson, secretary; Boyle building, Little Rock.

Carolina Lumber & Building Supply association: E. M. Garner, secretary, Builders building, Charlotte.

Central Kansas Lumbermen's association: M. L. Doner, secretary, Salina.

Central Missouri Association of Retail Lumber Dealers: Hy Guhleman, secretary, Jefferson City.

Florida Lumber & Millwork association: Mrs. Marie M. Bennett, secretary, P. O. Box 3666, Orlando.

Illinois Lumber & Material Dealers' association: J. D. McCarthy, secretary, 919 Ridgley building, Springfield.

Independent Retail Lumber Dealers' association: Edwin W. Elmer, secretary, 1144 Baker building, Minneapolis.

Indiana Lumber & Builders' Supply association: R. W. Slagle, secretary, 620 K. of P. Bldg., Indianapolis.

Intermountain Lumber Dealers' association: C. W. Nortz, secretary, 712 Newhouse Bldg., Salt Lake City 1.

Iowa Retail Lumbermen's association: W. H. Badeaux, secretary, Wallace-Homestead building, Des Moines 14.

Kentucky Retail Lumber Dealers' association: Donald A. Campbell, secretary, Lebanon.

Louisiana Retail Lumber & Building Material Dealers' association: R. Needham Ball, secretary, Baton Rouge.

Lumber & Supply Dealers' council of Georgia: J. G. Rowell, P. O. Box 2213, Atlanta 1, Ga.

Lumber Dealers' Association of Connecticut: William P. Beach, secretary, P. O. Box 1662, New Haven.

Lumber Dealers' Association of Western Pennsylvania: R. F. McCrea, secretary, Plaza building, Pittsburgh 19.

Lumbermen's Association of Texas: Gene Ebersole, executive vice president, Second National Bank building, Houston.

Lumber Merchants' Association of Northern California: Jack F. Pomeroy, secretary, 1833 Broadway or P. O. Box 623, Fresno.

Lumber Trade Association of Cook County: J. L. Strong, secretary, 30 North La Salle street, Chicago 2.

Maine, Retail Lumber Dealers' Association of: Ralph E. Jordan, secretary-treasurer, P. O. Box 236, Lewiston.

Maryland, Retail Lumber Dealers Association of: Lee J. Etelson, Lee Lumber & Supply company, Baltimore.

Massachusetts Retail Lumber Dealers' association: Willis F. Atkinson, secretary, c/o W. E. Atkinson company, Newburyport.

Michigan Retail Lumber Dealers' association: Hunter M. Gaines, secretary, Bank of Lansing Bldg., Lansing 68.

Middle Atlantic Lumbermen's association: Robert A. Jones, secretary, 1528 Walnut street, Philadelphia.

Mississippi Retail Lumber Dealers' association: E. B. Lemmons, secretary, Deposit Guaranty Bank building, Jackson 14.

Montana Retail Lumbermen's association: W. J. Howard, manager, Union Bank building or P. O. Box 214, Helena.

Mountain States Lumber Dealers' association: Joseph V. Smith, secretary-manager, Colorado National Bank building, Denver.

Nebraska Lumber Merchants' association: Phil Runion, secretary, Terminal building, Lincoln 8.

New Hampshire Retail Lumbermen's association: Harold Greatorex, secretary, Meredith.

New Jersey Lumbermen's association, H. K. Dilley, secretary, 605 Broad street, Newark 2.

New York Lumber Trade association: Fred W. Ritter, secretary, Grand Central Terminal, New York.

North Dakota Retail Lumbermen's association: John F. Alsop, secretary, P. O. Box 467, Fargo.

Northeast Missouri Lumbermen's association: O. W. Hetrick, secretary-treasurer, Columbia.

Northeastern Retail Lumbermen's association: Paul S. Collier, secretary-manager, 82 St. Paul street, Rochester 4, N. Y.

Northern Indiana & Southern Michigan Retail Lumber Dealers' association: Robert Chamberlain, secretary, South Bend, Ind.

Northwest Missouri Retail Lumbermen's association: Elmer Ford, secretary, c/o Hyde Valley Lumber company, St. Joseph, Mo.

Northwestern Lumbermen's association: W. H. Badeaux, secretary, Foshay Tower, Minneapolis 2.

Ohio Association of Retail Lumber Dealers: Findley M. Torrence, secretary, Green and Market streets, Xenia, Ohio.

Oregon Retail Lumbermen's association: C. A. Fariss, secretary, Western Lumber Co., Portland.

Rhode Island Lumber Dealers' association: J. Marshall Peters, secretary, E. E. Smith Lumber Company, Inc., Providence.

South Dakota Retail Lumbermen's association: Hiram G. Ross, secretary, c/o H. W. Ross Lumber company, Sioux Falls.

Southeast Missouri Retail Lumber Dealers' association: W. T. Nethery, secretary, Hayti, Mo.

Southern California Retail Lumbermen's association: Orrie W. Hamilton, secretary-manager, 111 West Seventh street, Los Angeles.

Southwest Missouri Retail Lumber Dealers' association: Grover McSpadden, secretary, Springfield.

Southwestern Iowa Retail Lumbermen's association: J. Stivers, secretary-treasurer, c/o Crawford Lumber company, Council Bluffs.

Southwestern Lumbermen's association: J. E. Johnston, secretary-manager, R. A. Long building, Kansas City 6.

Tennessee Lumber, Millwork & Supply Dealers' association: R. O. Brownlee, secretary-manager, 106 East Fifth avenue, Knoxville.

Texas Line Yard Retail Lumber Dealers' association: George H. Zimmerman, secretary, Waco.

Vermont Retail Lumber Dealers' association; Nathan Flint, secretary, c/o Flint Bros. Lumber company, Barre, Vt.

Virginia Building Material association: Harris Mitchell, secretary-manager, 3303 Monument avenue, Richmond 21.

Western Retail Lumbermen's association (U. S.): W. C. Bell, managing director, Lloyd building, Seattle 1.

West Virginia Lumber & Builders' Supply Dealers' association: Sam H. Diemer, secretary, Box 1589, Fairmont, W. Va.

Wisconsin Retail Lumbermen's association: Don S. Montgomery, secretary, 626 East Wisconsin avenue, Milwaukee 2.

LUMBER MANUFACTURERS' ASSOCIATIONS

NATIONAL LUMBER MANUFACTURERS' ASSOCIATION

1319 Eighteenth Street, N. W.
Washington 6, D. C.

R. A. Colgan, executive vice president

American Walnut Manufacturers' association: Burdett Green, secretary, 616 South Michigan avenue, Chicago 5.

Appalachian Hardwood Manufacturers, Inc.: C. H. Clendening, secretary-manager, 414 Walnut street, Cincinnati 2.

California Redwood association: Kenneth Smith, president, 405 Montgomery street, San Francisco 4.

Carolina Virginia Lumbermen's Club: H. Wiley Sholer, secretary-treasurer, P. O. Box 623, Lenoir, N. C.

Douglas Fir Plywood association: W. E. Difford, managing director, Tacoma building, Tacoma 2.

Hardwood Dimension Manufacturers' association: Louis J. Bosse, secretary-treasurer, Heyburn building, Louisville.

Indiana Hardwood Lumbermen's association: Roy C. Brundage, secretary-treasurer, West Lafayette, Ind.

Mahogany Association, Inc.: George N. Lamb, secretary-manager, 75 East Wacker drive, Chicago 1.

Maine Hardwood Manufacturers association: Everett F. Greaton, secretary, Auburn.

Maple Flooring Manufacturers' association: E. C. Singler, secretary, 332 South Michigan avenue, Chicago 4.

Michigan Sawmill Operators' association: Glenn Murray, secretary-manager, c/o Murray Brothers, Dexter, Mich.

Montana Lumber Manufacturers' association: Maurice E. Boorman, sec., Noffsinger Block, Kalispell, Mont.

National Hardwood Lumber association: John W. McClure, secretary, 59 East Van Buren street, Chicago 5.

National Oak Flooring Manufacturers' association: Henry H. Willins, secretary, Dermon building, Memphis.

New England Lumbermen's association: D. L. Bennett, secretary, Amoskeag Bank building, Manchester, N. H.

Northeastern Lumber Manufacturers' association: R. E. Broderick, secretary, 271 Madison avenue, New York 16.

Northern Hemlock & Hardwood Manufacturers' association: O. T. Swan, secretary-manager, Oshkosh, Wis.

Northern Pine Manufacturers' association: W. A. Ellinger, secretary-treasurer, 911 N. Larrabee St., Chicago 10, Ill.

Southeastern Hardwood Manufacturers' Club: Ethalind McCarthy, temporary secretary, Box 448, Jacksonville 1.

Southern Cypress Manufacturers' association: J. A. Prestridge, secretary, Barnett National Bank building, Jacksonville 1.

Southern Hardwood Producers, Inc.: C. E. Miller, secretary-manager, Sterick building, Memphis.

Southern Pine association: H. C. Berckes, secretary-manager, P. O. Box 1170, New Orleans 4.

Southern Woodwork association: W. B. Willingham, Jr., P. O. Box 2213, Atlanta.

The Veneer association: Charles E. Close, secretary-treasurer, 616 South Michigan avenue, Chicago 5.

West Coast Lumbermen's Association: H. V. Simpson, executive vice president, 1410 S. W. Morrison St., Portland 5, Ore.

West Side Hardwood Club: O. S. Robinson, secretary, Box 174, Camden, Ark.

Western Pine association: S. V. Fullaway, Jr., secretary-manager, Yeon building, Portland 4, Ore.

Western Red & Northern White Cedar association: W. H. Jones, sec.-mgr., Peyton building, Spokane 8.

West Side Lumber association: W. W. Findley, secretary-treasurer and manager, Little Rock.

Willamette Valley Lumbermen's association: H. J. Cox, secretary-manager, P. O. Box 112, Eugene, Ore.

Port Orford Cedar Lumber association: c/o B. V. Hancock, secretary, Evans Products company, Marshfield, Ore.

WHOLESALE AND COMMISSION LUMBER ASSOCIATIONS

National-American Wholesale Lumber association: Sid L. Darling, secretary, 41 East 42nd street, New York.

National Association of Commission Lumber Salesmen, Inc., F. J. More, secretary-manager, 4903 Delmar boulevard, St. Louis 8.

National Association of Hardwood Wholesalers: G. A. Vangsness, secretary, 166 West Jackson boulevard, Chicago 4.

National Hardwood Lumber association: John W. McClure, secretary, 59 East Van Buren street, Chicago 5

National Wholesale Lumber association: J. Jackson Kidd, secretary, Kidd & Buckingham Lumber company, Baltimore.

Associated Lumber & Allied Materials Salesmen of New Jersey (ALAMS): Milton L. Dake, secretary, 144 Milton place, South Orange.

Carolina Lumber & Material Salesmen's association: George W. French, secretary, Charlotte, N. C.

Empire State Lumber Salesmen's association: John C. Artz, secretary, 82 St. Paul street, Rochester 4, N. Y.

Long Island Salesmen's association: R. H. Delano, secretary, 126 Maple street, Great Neck, N. Y.

Michigan Association of Traveling Lumber & Sash Door Salesmen: A. C. Blixberg, secretary, 3310 Hazelwood avenue, Detroit 6.

Mississippi Valley Lumber & Sash & Door Salesmen's association: Fred B. Anderson, secretary, F. B. Anderson Lumber company, Minneapolis.

New England Wholesale Lumber association: David M. Osborne, secretary, Osborne Lumber company, Boston.

Northwestern Hardwood Lumbermen's association: A. F. Wellesley, secretary, Minneapolis.

Pacific Coast Wholesale Hardwood Distributors' association: James Davis, secretary, Davis Hardwood company, San Francisco.

Southern Wholesale Lumber association: Robert F. Darrah, 700 Jackson building, Birmingham, Ala.

Union Association of Lumber & Sash & Door Salesmen: John P. Bartelle, secretary, 435 West Bancroft street, Toledo, Ohio.

WOODWORKING, LOGGING AND MISCELLANEOUS LUMBER AND ALLIED ORGANIZATIONS

American Box Shook Export association, Barr building, Washington 6, D. C. C. D. Hudson, manager.

American Forest Products Industries, Inc., 1319 Eighteenth street, N. W., Washington 6, D. C. Richard A. Colgan, Jr., manager; Henry Bahr, secretary.

American Forestry association, 919 Seventeenth street, Washington 6, D. C. Ovid Butler, executive secretary.

American Hardwood Exporters, Inc., 602 Carondelet building, New Orleans. A. E. Hegewisch, sec.

American Veneer Package association, 2101 K street, N. W., Washington 7, D. C. Robert W. Davis, secretary-manager.

American Wood Preservers' association, 1427 Eye street, N. W., Washington 5, D. C. Horace L. Dawson, secretary.

Arkansas Soft Pine Bureau, Boyle building, Little Rock, Ark. Robert H. Brooks, manager.

Associated Cooperage Industries of America, 408 Olive street, St. Louis 2. M. T. Rogers, secretary.

Association of State Foresters, Glen R. Durrell, sec., Oklahoma City.

Blackfoot Forest Protective association, Charles P. Keim, secretary, Box 1167, Missoula, Mont.

California Lumbermen's Accident Prevention association, 1924 Broadway, Oakland 12, Calif. D. N. Edwards, secretary.

Cedar Chest Manufacturers of America, American Furniture Mart, 666 Lake Shore drive, Chicago 11. D. H. Caswell, secretary.

Central Committee on Lumber Standards, Washington, D. C. L. W. Smith, sec.

Douglas Fir Export company, 1125 Henry building, Seattle. L. E. Force, gen. mgr.

Eastern Woodwork Bureau, 103 Park avenue, New York. Wm. Lucas, sec.

Fir Door Institute, Tacoma building, Tacoma. W. E. Difford, managing director.

Forest Farmers Association Cooperative, Colin P. Kelly, executive director; Wayne G. Miller, executive secretary, P. O. Box 692, Valdosta, Ga.

Hardwood Plywood Institute, 616 South Michigan avenue, Chicago 5. Charles Close, secretary.

Hickory Handle association, Hope, Ark. Guy E. Basye, sec.

Intercoastal Lumber Distributors' association, 205 East 42nd street, New York 17. E. M. Battenberg, secretary.

Intermountain Logging Conference, c/o Charles P. Keim, secretary, 447 North Higgins avenue, Missoula, Mont.

International Concatenated Order of Hoo-Hoo, 404 East Wisconsin avenue, Milwaukee. Ben F. Springer, secretary.

Lumber Manufacturers Association of Southern New England, Ansonia, Conn. Theodore L. Bristol, sec.

Michigan Sawmill Operators' association, c/o Forestry Department, Michigan State college, Lansing. Glenn D. Murray, secretary-manager.

National Association of Wood Heel Manufacturers, 191 Merrimack street, Haverhill, Mass. Arthur A. Mullins, exec. sec.

National Door Manufacturers' association, 332 South Michigan avenue, Chicago 4. Ormie C. Lance, secretary-manager.

National Handle Manufacturers association, Arcola, Ill. Frank F. Collins, sec.

National Lumber Exporters association, Sterick building, Memphis. Douglas F. Heuer, secretary.

National Plywood Distributors' association, 111 West Washington street, Chicago 2. R. M. McClure, managing director.

National Wooden Box association, Barr building, Washington 6, D. C. C. D. Hudson, secretary.

Pacific Forest Industries, Inc., Tacoma building, Tacoma. Axel H. Oxholm, managing dir.

Pacific Logging Congress, American Bank building, Portland 5, Ore. J. Whisnant, secretary.

Pacific Lumber Carriers association, 311 California street, San Francisco. Robert C. Parker, chairman,

Pacific Lumber Inspection Bureau, Inc., White-Henry-Stuart building, Seattle 1. Frank L. Rogers, secretary-manager.

Pacific Northwest Woodwork association, 3800 Seventh avenue, S., Seattle. E. E. Vogue, secretary.

Pacific Northwest Loggers association, Stuart building, Seattle 1. E. T. Clark, secretary.

Pencil Makers association (wood cased lead pencils), 500 Willow avenue, Hoboken, N. J. John K. Reckford, sec.

Pacific Northwest Wholesale Sash & Door association, 1117 "A" street, Tacoma 1. B. G. Young, secretary.

Ponderosa Pine Woodwork association, 111 West Washington street, Chicago 2. Robert M. Bodkin, general manager.

Prefabricated Home Manufacturers' Institute, Shoreham building, Washington, D. C. Harry H. Steidle, managing director.

Railway Tie association, 610 Shell building, St. Louis 3. Roy M. Edmonds, secretary.

Red Cedar Shingle Bureau, White building, Seattle. W. W. Woodbridge, secretary-manager.

Roofer Manufacturers' association, W. R. Melton, secretary, Cuthbert, Ga.

Shook Exporters association (for wooden containers), Pekin, Ill. H. G. Herget, chairman.

Society of American Foresters, 825 Mills building, Washington, D. C. Henry E. Clepper, executive secretary.

Southeastern Box & Shook Manufacturers' association, Johnston building, Charlotte, N. C. Joseph Gall, sec.

Southern Hardwood Traffic association, Commerce Title building, Memphis. C. A. New, secretary.

Southern Pine Inspection Bureau, A. S. Boisfontaine, secretary-manager. Canal building, New Orleans 4.

Southern Sash & Door Jobbers association, Sterick building, Memphis. W. A. Seagle, secretary.

Southern States Forest Fire Commission, W. L. Shaddix, secretary, Double Springs, Ala.

Southern Woodwork association, P. O. Box 2213, Atlanta. W. B. Willingham, Jr., secretary.

Texas Mill Managers' association, A. E. Cudlipp, secretary, Box 58, Lufkin, Tex.

Texas Millwork association, P. O. Box 1854, San Antonio. H. T. Didesch, secretary.

Upper Peninsula Timber Producers association, Lawrence P. Walsh, secretary, Ontonagon, Mich.

Washington Forest Fire association, 949 Henry building, Seattle. O. Byrstrom, secretary.

Western Forest Industries association: R. T. Titus, executive secretary, Portland, Ore.

Western Forestry & Conservation association, Henry building, Seattle. Clyde S. Martin, secretary.

Wholesalers of Lumberyard Specialties, 111 West Washington street, Chicago 2. A. E. Pye, managing director.

Willamette Valley Logging Conference, P. O. Box 929, Eugene, Ore. H. J. Cox, secretary.

Wooden Box Institute, Call building, San Francisco. Jack H. Dobbin, president.

Wood-For-Venetians association, 5410 Wilshire boulevard, Los Angeles 36. F. M. Binnion, secretary-manager.

Wood Hat Block Manufacturers association, 1440 Broadway, New York. Louis Mehlman, sec.

Wooden Pail & Tub association, 10 McKinley street, Keene, N. H. W. M. Barnard, exec. sec.

Woodwork Jobbers Service Bureau, 30 North La Salle street, Chicago 2. Adolph Pfund, secretary.

Wood Turners Service Bureau, Statler Office building, Boston 16. (Miss) Sigrid E. Swanson, executive secretary.

BUILDING MATERIALS AND ALLIED ASSOCIATIONS

American Concrete Pipe Association, 33 West Grand avenue, Chicago 10. M. W. Loving, consulting engineer.

American Hardware Manufacturers' association, 342 Madison avenue, New York.

American Paper & Pulp association, 122 East 42nd street, New York. E. W. Tinker, executive secretary.

American Turpentine Farmers Association Cooperative, 108 West Hill aveniue, Valdosta, Ga. J. Lundie Smith, Jr., secretary.

American Zinc Institute, Inc., 60 East 42nd street, New York 17. Ernest V. Gent, secretary.

Asbestos Cement Products association, 17th floor, Inquirer building, Philadelphia 30. Donald Tulloch, Jr., secretary.

Asphalt Roofing Industry Bureau, 2 West 45th street, New York 19. J. S. Bryant, managing director.

Asphalt Tile Institute, c/o Armstrong Cork company, Lancaster, Pa. H. Dorn Stewart, secretary.

Brick Manufacturers' Association of America, merged with Structural Clay Products Institute.

Building Material Exhibitors association, 30 North La Salle street, Chicago 2. Adolph Pfund, secretary.

Cast Stone Institute, 2135 Queens Chapel road, N. E., Washington 18. D. C. Charles G. Walker, managing director.

Clay Products association, 111 West Washington street, Chicago 2. John D. Cook, secretary.

Gypsum association, 211 West Wacker drive, Chicago 6. Henry J. Schweim, secretary.

Indoor Climate Institute, New Center building, Detroit 2. R. E. Moore, secretary.

Insect Wire Screen Cloth Bureau, 74 Trinity place, New York 6. Ralph W. Bacon, secretary.

Insulation Board Institute, 111 West Washington street, Chicago 2. J. B. Blackburn, manager and secretary.

Lead Industries association, 420 Lexington avenue, New York. Felix E. Wormser, secretary.

Metal Lath Manufacturers' association, Engineers building, Cleveland 14. Arthur J. Tuscany, commissioner.

Metal Window Institute, 1427 Eye street, Washington, D. C. Myron J. Jones, technical assistant.

National Association of Furniture Manufacturers, 666 Lake Shore drive, Chicago. Dr. A. P. Haake, managing director.

National Coal association, 804 Southern building, Washington 5, D. C. J. D. Battle, executive secretary.

National Clay Pipe Manufacturers, Inc.: 111 W. Washington St., Chicago 2, Ill.

National Clean Up & Paint Up Campaign Bureau, 1500 Rhode Island avenue, N. W. Washington, D. C. Ralph W. Emerson, executive secretary.

National Concrete Masonry association, 33 West Grand avenue, Chicago 10. E. W. Dienhart, executive secretary.

National Electrical Manufacturers' association, 155 East 44th street, New York 17. W. J. Donald, managing director; George B. Cumming, general secretary.

National Glass Distributors association, 435 North Michigan avenue, Chicago 11. North Storms, secretary.

National Industrial Sand association, 951 Munsey building, Washington 4, D. C. V. P. Ahern, executive secretary.

National Lime association, 927 Fifteenth street, N. W., Washington 5, D. C. Walter S. Stauffer, president and general manager; W. Vernon Brunbaugh, secretary.

National Mineral Wool association, 1270 Sixth avenue, New York 20. Wharton Clay, secretary.

National Paint, Varnish & Lacquer association, 1500 Rhode Island avenue, N. W., Washington 5, D. C. Reuel W. Elton, secretary.

National Ready Mixed Concrete association, 951 Munsey biulding, Washington 4, D. C. V. P. Ahearn, executive secretary.

National Sand & Gravel association, 951 Munsey building, Washington 4, D. C. V. P. Ahearn, executive secretary.

Plumbing & Heating Industries Bureau, 35 East Wacker drive, Chicago 1. Norman J. Radder, secretary.

Portland Cement association, 33 West Grand avenue, Chicago 10. William M. Kinney, vice president and general manager.

Producers Council, Inc., 815 15th, N. W., Washington 5, D. C., Andrew Harris, managing director.

Stoker Manufacturers' association, 307 North Michigan avenue, Chicago 1. Marc G. Bluth, executive secretary.

Structural Clay Products Institute, 1756 K street, N. W., Washington, D. C. J. J. Cermak, managing director.

Wall Paper Institute, 400 Madison Ave., New York 17, N. Y. W. L. Carver, secretary.

Window Glass Manufacturers' association, 19 West 44th street, New York. Charles R. Stevenson, secretary.

Wholesalers of Lumberyard Specialties, 111 West Washington street, Chicago 2. A. E. Pye, managing director.

TECHNICAL AND PROFESSIONAL ASSOCIATIONS

Adhesives Manufacturers' Association of America, 441 Lexington avenue, New York. Edward J. Steiger, managing dir.

Alabama-Florida Turpentine Producers association, Bay Minette, Ala. E. Davidson, sec.

Allied Building Metal Industries, 101 Park avenue, New York. A. W. Nelson, pres.

American Box Shook Export association, 308 Barr building, Washington, D. C. C. D. Hudson, mgr.

American Concrete Institute, New Center building, Detroit 2. Harvey Whipple, sec.

American Hardware Manufacturers' association, 342 Madison avenue, New York. Charles F. Rockwell, sec.

American Institute of Real Estate Appraisers of National Association of Real Estate Boards, 22 West Monroe street, Chicago. Herbert U. Nelson, executive vice president.

American Ladder Institute, 1559 Burbank road, Wooster, Ohio. J. E. Weiser, sec.

American Leather Belting association, 100 Gold street, New York. J. Louis Nelson, sec.

American Pulpwood association, 220 East 42nd street, New York. H. E. Brinckerhoff, exec. sec.

American Society of Agricultural Engineers, Box 229, St. Joseph, Mich. Raymond Olney, sec.

American Society of Heating & Ventilating Engineers, 51 Madison avenue, New York city. A. V. Hutchinson, secretary.

American Society of Mechanical Engineers, 29 West 39th street, New York. C. E. Davies, secretary.

American Society for Testing Materials, 260 S. Broad street, Philadelphia. C. L. Warwick, sec.

American Soda Pulp Export association, 230 Park avenue, New York. C. A. Clough, sec.

American Standards association, 29 West 39th street, New York City. P. G. Agnew, secretary.

American Supply & Machinery Mfr. association, 1108 Clark building, Pittsburgh. R. Kennedy Hanson, sec.

Asphalt Institute, 801 Second avenue, New York. W. R. Macatee, managing dir.

Association of Mfrs. of Wood-Working Machinery, c/o Porter Machinery company, Grand Rapids, Mich. C. O. Porter, pres.

Cement Institute, 111 West Washington street, Chicago 2. A. E. Hjerpe, secretary.

Eastern Wooden Box association, 80 Boylston street, Boston. C. D. Hudson, pres.

Farm Equipment Institute, 608 So. Dearborn street, Chicago 5. Robert A. Jones, sec.

Glazed Brick & Tile Institute, 1427 Eye street, Washington, D. C. J. J. Cermak, sec.

National Association of Blocking Wood Manufacturers (used by photo-engravers etc.), 270 Broadway, New York. John R. Egner, sec.

National Association of Home Builders: Frank W. Cortright, executive vice president, 1737 K street N. W., Washington, D. C.

National Crushed Stone association, 1735 14th street, Washington, D. C. J. R. Boyd, admin. dir.

National Fire Protection association, 60 Batterymarch street, Boston. Percy Bugbee, general manager.

National Warm Air Heating & Air Conditioning association, 5 East Long street, Columbus, Ohio. George Boeddener, managing dir.

Pacific Coast Asphalt Shingle & Roofing Institute (mfrs.), 1151 South Broadway, Los Angeles. Sylvester L. Weaver, pres.

Pacific Coast Association of Pulp & Paper Manufacturers, Longview, Wash. R. S. Wertheimer, sec.

Plywood Package Institute, 19 West 44th street, New York. Robert D. Magill, sec.

Soda Pulp Manufacturers' association (wood pulp products), 230 Park avenue, New York. R. I. Worrell, sec.

Society of Residential Appraisers, 221 North La Salle street, Chicago. F. Hardinge, Jr., secretary.

U. S. Pulp Producers association, 122 East 42nd street, New York. Oliver M. Porter, sec.

United States Savings & Loan League, LaSalle-Wacker building, Chicago. Morton Bodfish, executive vice president.

CANADIAN LUMBER ASSOCIATIONS

British Columbia Truck Loggers' association: F. H. Adams, Nanaimo, B. C., secretary.

British Columbia Loggers' association: John M. Burke, manager, Vancouver, B. C.

British Columbia Lumber & Shingle Manufacturers' association: T. H. Wilkinson, secretary, Vancouver, B. C.

Canadian Forestry association: Robson Black, president and general manager, Montreal, Que.

Canadian Lumbermen's association: Victoria building, Ottawa, Canada. W. J. LeClair, secretary-manager.

Canadian Hardwood Bureau: Affiliated as part of Canadian Lumbermen's Assn.

Canadian Lumber Distributors' Bureau: Affiliated as part of Canadian Lumbermen's Assn.

Canadian Spruce Bureau: Affiliated as part of Canadian Lumbermen's Assn.

Consolidated Red Cedar Shingle association of British Columbia, Metropolitan building, Vancouver, B. C. G. S. Raphael, secretary-manager.

Interior British Columbia Lumber Manufacturers' association: O. S. Harris, president, Canoe, B. C.

Maritime Lumber Bureau: R. S. Cumming, secretary-manager, P. O. Box 264, Amherst, N. S.

New Brunswick Retail Lumber Dealers' association: R. S. Cummings, secretary, P. O. Box 264, Amherst, N. S.

Northern Interior Lumbermen's association: Hugh Dalton, general secretary; Vancouver, B. C.

Ontario Retail Lumber Dealers' association: Horace Boultbee, secretary-manager, 229 Yonge street, Toronto 2, Ont.

Province of Quebec Lumber Dealers & Manufacturers' association: E. H. Begin, secretary, Gatehouse building, Montreal, Que.

Quebec Province Wholesale Lumber association: Gordon D. Grimshaw, secretary, 3610 Oxenden Ave., Montreal, P. Q.

Western Lumber Manufacturers' Association of Canada: Earl C. King, secretary, Vancouver, B. C.

Wholesale Lumber Dealers' Association of Toronto: H. J. Luck, secretary, Toronto, Ont.

White Pine Bureau: Affiliated as part of Canadian Lumbermen's association.

Western Retail Lumbermen's Association of Canada: W. Y. Strachan, secretary, 407 Scott Block, Winnipeg, Man.

Woodwork Jobbers

ALABAMA

Birmingham Sash & Door Co Birmingham Ala
Cole Mfg Co 3901 First Av N Birmingham
Moore-Handley Hdwe Co Birmingham
Wimberly and Thomas Hdwe Co Inc Birmingham
McGowin-Lyons Hdwe & Supply Co Mobile
McPhillips Mfg Co Mobile
Underwood Coal & Supply Co Mobile
Anniston Hdwe Co Anniston
Bloch Brothers Selma
Allen & Jemison Co Tuscaloosa

ARIZONA

Arizona Sash Door & Glass Co Phoenix and Tucson
Galbraith Steel & Supply Co Phoenix
Southwestern Sash & Door Co Inc Tucson & Phoenix
Charles R West Phoenix

ARKANSAS

Dyke Bros Fort Smith North Little Rock Texarkana
Kenney Brothers Fort Smith
Scott Sash & Door Co Little Rock
Long-Bell Lbr Co Fort Smith
Cole Mfg Co Little Rock
Standard Lumber Co Pine Bluff
Wm Cameron & Co Inc Texarkana
Western Door & Plywood Corp Fort Smith
Arkmo Lbr Co North Little Rock

CALIFORNIA

H W Brown Sash & Door Co 1913 E Florence Los Angeles
Cole Door & Plywood Co 1049 E Slauson Av
MacDougall Door & Plywood Co 2035 E 51st Los Angeles
W P Fuller & Co Sacramento San Diego San Francisco
Nicolai Door Sales Co of Calif San Francisco
California Builders Supply Co Oakland
T M Cobb 5800 S Central Av Los Angeles & San Diego
Haley Brothers Santa Monica
Theodore Kornweibel Alhambra
Geo E Ream Co 235 S Alameda St Los Angeles
Pacific Mfg Co Santa Clara
Patten-Blinn Lbr Co 521 E 5th St Los Angeles
Western Door & Sash Co Oakland and Berkeley
Davis Millwork Co 1915 Adeline St Oakland
Wholesale Bldg Sup Co 1607 32nd St Oakland
California Bldrs Supply Co Ltd 19th & S Sts Sacramento
San Francisco Sash & Door Co 290 Valencia St San Francisco
Harrison Wholesale Co Santa Barbara
Lumber Distributors Inc Stockton
T V Walker & Son Burbank
California Door Co Los Angeles
H W Koll Mill & Lbr Co Los Angeles
Downes & Spelman 2309 Adeline St Oakland
Lincoln Lbr Co 2201 E 14th St Oakland
Walter G Brobeck 153 Kearney St San Francisco
Harbor Plywood Corp of Calif 540 10th St San Francisco

COLORADO

Lumber Dealers Inc 1301 Wazee St Denver and Pueblo
Denver Reserve Supply Co 901 Wazee St Denver
Sterling Lbr & Investment Co Denver

CONNECTICUT

Cleary Millwork Co Inc Ansonia
Rogers Sash & Door Co New Britain & Hartford
Patmore Millwork Inc Bridgeport
Brockway-Smith-Haigh-Lovell Co Hamden
Hotchkiss Bros Co Torrington

DELAWARE

Morgan Millwork Co Inc Wilmington

FLORIDA

Atlanta Oak Flooring Co Jacksonville
Jacksonville Sash & Door Co Jacksonville
Gate City Sash & Door Co Ft Lauderdale and Miami
Huttig Sash & Door Co Jacksonville and Miami
A H Ramsey & Sons Inc Miami
Baird Hardware Co Gainesville Ga
Harbor Plywood Corp Jacksonville
Henderson-Fouraker Lumber Co Jacksonville
Wm Curry's Sons Co Key West
Lindsley Lumber Corp Miami
Knight & Wall Company Tampa
Krauss Bros Lbr Co of Fla Tampa

GEORGIA

Addison-Rudesal Co Atlanta
Augusta Lumber Co Augusta
East Side Lumber & Coal Atlanta
Harbor Plywood Corp Atlanta
Neal Blun Co Savannah

IDAHO

W P Fuller & Co Boise
Idaho Supplies Inc Grangeville Lewiston Moscow

ILLINOIS

Clifford E Lamb Aurora
Curtis Companies Inc 1414 S Western Av Chgo 8
Harbor Plywood Corp 1444 W Cermak Rd Chgo 8
Morgan Sash & Door Co 2287 Blue Island Av Chgo 8
Pacific Mutual Door Co 2141 S Throop St Chicago 8
Roberts Sash & Door Co 920 W Cullerton St Chgo 8
White Pine Sash Co 3612 W 38th St Chgo 32
Chicago & Riverdale Lbr Co 341 E 136 Pl Chgo
C L Ibsen Co 2139 Elston Av Chgo
Morgan Sash & Door Co 2287 Blue Island Chgo
Salb Sash & Door 2509 W Cermak Rd Chgo
Carr & Johnston Peoria
Buhai Sash & Door Co 3743 Belmont Av Chgo
Central Millwork Co 4920½ W Fullerton Chgo
Hannapel Door & Plywood Co 525 W 76th Chgo
F T Kartheiser Co 1911 N Harlem Ave Chicago
Geo J Silbernagel 8 S Michigan Ave Chicago
Melrose Mill Co 4257 Lincoln Av Chgo
F A Ringwald Co 353 W Madison Chgo
Roddis Co. 1440 W Cermak Rd Chgo
Frank Veverka Sash & Door Co 59th Av & IC RR Cicero
Alexander Lbr Co Decatur
Valley Mercantile Co Elgin
Lumber Products Co Glencoe
Building Products Elkville
Edward Hines Lbr Co Skokie
Building Materials Wholesale Springfield
James R Fitzpatrick Springfield

INDIANA

Adams-Rogers Co P O Box 154 Indianapolis
Evansville Sash & Door Co Evansville
Midland Building Industries Inc 907 East Michigan St Indianapolis 6 Ind
Hoosier Sash & Door Co Inc Anderson
Raymond W Stremming Evansville
Tri-State Wholesale Sash & Door Co Evansville
American Plywoods & Millwork Co Indianapolis
Hass Millwork & Bldg Materials Inc South Bend
Building Products Co Evansville
Indiana Reserve Supply Co Inc Fort Wayne
Koschnick & Co Indianapolis

IOWA

Curtis Companies Inc Clinton and Sioux City
Wood Products Co Waterloo
National Lbr & Shingle Co Des Moines
Williams & Hunting Co Cedar Rapids
Loetscher & Burch Mfg Co Des Moines
F I Products Co Fort Dodge
Fort Dodge Wholesale Distributing Co Fort Dodge

KANSAS

Curtis Companies Inc Topeka
Pacific Mutual Door Co., Kansas City
Rounds & Porter Co Wichita
United Sash & Door Co Wichita

KENTUCKY

Central Kentucky Supply Co Lexington
Louisville Sash & Door Co Louisville
Lumbermen's Wholesale Service Inc Louisville
Welker Sash & Door Co Inc., Louisville
Paducah Sash & Door Co Paducah, Ky
Big Sandy Hardware Co Paintsville
Byron Sash & Door Co Louisville
Huttig Sash & Door Co Hughes Division Louisville

LOUISIANA

Davidson Sash & Door Co Inc Alexandria and Lake Charles
Cole Mfg Co 1740 Poydras New Orleans
Madison Lbr Co 721 S Claiborne Av New Orleans
Tulane Hdwd Lumber Co Inc 4200 Tulane Av New Orleans
Allen Millwork Mfg Co St Vincent Av & 63rd Shreveport
Gulf States Plywood Co 781 La Salle St New Orleans
New Orleans Sash & Door Co 2730 Clio St New Orleans
Lumber Dealers Supply Co Inc Baton Rouge
Bacon Lbr Co Whitney Bldg New Orleans
Lumbermen's Supply Co Monroe

MAINE

H F Farnham Company Portland
Brockway-Smith-Haigh-Lovell Co Portland

MARYLAND

Dixie Millwork Co Inc Hagerstown
Morgan Millwork Co Inc 113 W North Av Baltimore
Radford & Sanders Inc 612 W Pratt Baltimore

Dealers Warehouse Supply Co Inc Hillen & Exeter Sts Baltimore
Pacific Mutual Door Co 1407 Fleet St Baltimore
Harbor Sales Co Inc 1501 S Warner St Baltimore
Buchanan Lbr Co Cumberland
Delmarva Sash & Door Co Inc Sudlersville

MASSACHUSETTS

Brockway-Smith-Haigh-Lovell Co 465 Medford Boston and Lynn
Hall-Gregg Inc 309 Beacon St Somerville
Brittain & Cannon Co., Watertown
Martin Lumber Co Springfield
F H Newton Co Inc Somerville
Roddis Plywood & Door Co Inc 15 Carleton St Cambridge
Richards & Davis Fall River
A W Hasting & Co Inc Somerville
Springfield Millwork Co Springfield
Kimball Lumber Co Watertown
W H Sawyer Lumber Co Worcester

MICHIGAN

Curtis Ros Co 5159 Loraine Av Detroit 8
Flint Sash & Door Co Flint 1 and Saginaw
Grand Rapids Sash & Door Co Grand Rapids 8
Kimball & Wilson Inc 2127 Fenkell Av Detroit 3
Kneeland-Bigelow Distrib Co Bay City
Porter-Hadley Co Grand Rapids 2
Royal Oak Wholesale Co Royal Oak
Teachout Sash Door & Glass Co Brandt and Wyoming Sts Detroit 10
Welch Sash & Door Co Port Huron
Wolverine Shingle & Lumber Co 14930 Linwood Av Detroit 21
Mershon Eddy Parker Co Saginaw
Saginaw Lumber Co Saginaw
Kimball & Wilson 2127 Fenkell Av Detroit
Pfaff Sash & Door Co 14291 Meyers Rd Detroit
Wholesale Lbr & Bldg Matls Inc 7500 E Davison Av Detroit
Wolverine Shingle & Lbr Co 14930 Linwood Detroit
Smith-Orr Co Dearborn
Dealers Wholesale Supply Co Inc 12871 Eaton Av Detroit
Lumbermen's Credit & Warehouse Co Kalamazoo
Grand Rapids Sash & Door Co 1300 Turner St Lansing
Continental Screen Co Detroit
C L Ibsen Co 5437 Hecla Ave Detroit
Patterson Lbr Co Detroit
Carl W Scott 12844 Greenfield Ave Detroit
Miller Whise & Warehouse Co Kalamazoo

MINNESOTA

F I Products Co St Paul
Scott-Graff Co Duluth
Carr-Cullen Co 1030 Marshall St Minneapolis
Curtis Companies Inc 1809 SE Fifth Minneapolis
E E Bach Millwork Co 3121 Hiawatha Minneapolis
Simons Inc 7th St S & Cedar Av Minneapolis
Radford Co 106 N 46th Av W Duluth
Pacific Mutual Door Co 2235 Territorial Rd St Paul
Donlin-Johnson Co St Cloud
Walter Burfeind Co 100 24th Av N Minneapolis
Snell Sash & Door Co 1400 Selby Av St Paul

MISSISSIPPI

Hattiesburg Hdwe Stores Inc Hattiesburg
Allen Millwork Mfg Co Jackson
McGraw-Curran Lbr Co Inc Yazoo City
General Wholesale Co Jackson

MISSOURI

Waggener Store Co Festus
Southwestern Sash & Door Co Joplin
Rust Sash & Door Co Kansas City
Imse-Schilling Sash & Door Co 4217 Beck St St Louis
St Louis Sash & Door Works 3440 N Broadway St Louis
Dyke Bros 13th St & Mulberry Kansas City and Joplin
Toombs-Fay Co 542 W Phelps St Springfield
American Sash & Door Co St Joseph
Central Sash & Door Co Springfield
Southern Supply Co Springfield
Waggener Store Co Festus
Fox Bros Mfg Co 2717 Sidney St St Louis
Theling-Lothman Mfg Co St Louis

MONTANA

Building Service Inc Great Falls Mont
W P Fuller Inc Butte and Missoula
Havre Bldrs Supply Co Havre
Richland Lumber Co Glendive

NEBRASKA

Curtis Companies Inc 645 K St Lincoln
Adams & Kelly 1218 Nicholas St Omaha

NEVADA

Builders Mill Inc Reno

NEW HAMPSHIRE

D'Arcy Co Dover

NEW JERSEY

Pacific Mutual Door Co Garwood
Bosman & Casson Inc Harrison
Jersey Millwork Corp Jersey City
Whittier Lbr & Millwork Co Newark
Reeb Millwork Corp Roselle
Black Millwork & Lbr Co Inc Midland Park
Engler Millwork Corp Jersey City
General Woodcraft Co Inc North Bergen
J R Quigley Co Gloucester City
C R Rudinger Inc Kearney
Central Jersey Wholesale Supply Co Trenton

NEW MEXICO

Southwestern Sash & Door Co Inc Albuquerque
Santa Fe Bldrs Sup Co Santa Fe

NEW YORK

The Blount Lumber Co Oswego County Lacona
General Millwork Corp Utica 1
The Gibson Door Co Utica 4
Iroquois Door Co Buffalo 10 Syracuse 8
Iroquois Millwork Corp Albany 1
Rock Island Lbr Co—Teachout Co Division 52 Leslie St Buffalo 11
Wood Glass Co Syracuse
Concord Lumber Co Inc P O Box 1297 Albany 1
Robbins Millwork Co Inc Albany
Robbins Door & Sash Co Inc Ithaca
Charles C Kellogg & Sons Utica
J A Melnick 131 51st St Brooklyn
Octavius Leon Inc 20 Worth St Yonkers
Parshelsky Bros Inc 131 Morgan Av Brooklyn
General Millwork Corp 70 Fourth Av Albany
Evans Lumber Co Inc 1698 Genessee St Buffalo
Marvin Millwork Inc Ellenville
Sturtevant Millwork & Lbr Corp Hicksville
Cameron Lumber Co Inc Newburgh
White Wholesale Millwork Inc Ardsley N Y
J A Melnick Co Inc 131 51st St New York N Y
Empire Millwork Corp Northern Blvd at Willets Pt New York N Y
American Screen Distributors 222nd & 97th Sts NY NY
Becker-Danowitz Co Inc 414 Hooper St NY NY
Entenman Millwork Corp 169 Gardner Ave Brooklyn
Glendale Sash & Millwork Corp 71-00 80th St Glendale NY NY
Gottfried Millwork Co 17 Forrest St Brooklyn
Concord Lbr Co Inc Albany
Feldman Wood Products Co 23-49 Borden Ave Long Island City N Y
Hussey-Williams Co Inc 90-15 95th Ave Ozone Park N Y
Whitmer-Jackson Co Buffalo 4 and Rochester 3
Royal Glass Works Corp 50-20 25th St Long Island City N Y
Valentine Stortz & Co 136 Liberty St NYC NY

NORTH CAROLINA

Huttig Sash & Door Co Charlotte
North State Material Co Asheville
Atlanta Oak Flooring Co Charlotte
Barger Millwork Co Statesville
Harris Hdwe Co Washington
Smith Builders Supply Inc Wilmington

NORTH DAKOTA

Minot Builders Supply Minot and Williston
Bardwell-Robinson Co Fargo
Builders Supply Co Bismarck and Fargo

OHIO

Brown-Graves Co 191 E Miller Ave Akron 1
Acme Sash & Door Co 2nd and John St Cincinnati 2
Akron Sash & Door Co Akron 11
Collier-Barnett Co Toledo 2
Dayton Sash & Door Co Dayton 2
Great Lakes Sash & Door Co Cleveland 14
Interstate Sash & Door Co Canton 4
Interstate Sash & Door Co 1484 Riverbed Av NW Cleveland 13
Lumbermen's Door & Trim Co 18161 Euclid Av Cleveland 12
Mahoney Sash & Door Co 1908 Mahoning Rd NE Canton 5
Allen A Smith Co Toledo 6
Teachout Sash Door & Glass Co Columbus 15
Throop-Martin Co Columbus 15
Toledo Door & Sash Co Toledo 7
Whitmer-Jackson Co Cleveland
Lumbermen's Wholesale Co Ashland O
Cincinnati Sash & Door Co 942 W 6th Cincinnati
Almas Lumber Company Cleveland
Babin Sash & Door Co Cleveland
Carver-Behan Co Cleveland
Great Lakes Sash and Door Co Cleveland
Interstate Sash & Door Co Cleveland
Lumbermen's Door & Trim Co Cleveland
Rock Island Lumber Co Cleveland
Huttig Sash & Door Co Columbus
Rae Columbus Inc Columbus
Collier Barnett Company Toledo
Allen A Smith Company Toledo
Toledo Door & Sash Co Toledo
Queen City Sash & Door Co 45 Race St Cincinnati
Ohio City Sash & Door Co Dayton

OKLAHOMA

Wm Cameron & Co Altus
Lumbermen's Millwork & Supply Co Ardmore
T H Rogers Lumber Co McAlester
Dyke Brothers Oklahoma City
Long-Bell Lbr Co Oklahoma City
Lumber Mill Sales Co Oklahoma City
Morgan Sash & Door Co Oklahoma City
Oklahoma Sash and Door Co Oklahoma City
Southern Bldrs Supply Co Ada
L C Morgan Sash & Door Co Lawton
Kilpatrick Bros Inc Oklahoma City
Neal Millwork & Supply Co Oklahoma City
General Sash & Door Co Tulsa
Rounds & Porter Co Altus Oklahoma City and Tulsa

OREGON

Western Door & Plywood Corp Albany
W P Fuller & Co Inc Portland
Gilbert Hawley Co Portland
J H Lausmann Co Portland
Lumber Products Inc Portland
Western Door & Plywood Co Lumbermen's Bldg Portland

PENNSYLVANIA

Adelman Lumber Co Pittsburgh 19
Commercial Sash & Door Co Pittsburgh 1
N B Epstein Company Scranton 9
Lyman Felheim Co Erie
Iron City Sash & Door Co Pittsburgh 3
J R Quigley Co Inc Cressona
W C Ashenfelter & Son Inc Philadelphia
Wm H Derr Co Philadelphia
Buchanan Lbr Co Altoona
Reeb Millwork Corp Bethlehem
Delmarva Sash & Door Co Inc Lancaster
Soult Lbr Co Clearfield
Lumico Sales Co 927 N Front St Philadelphia
Robbins Door & Sash Co Scranton Shenandoah and Williamsport

RHODE ISLAND

H A Grimwood Providence

SOUTH CAROLINA

Dealers Supply Co Greenville
Southern Sash & Door Co Greenville
W S Robinson Chester

SOUTH DAKOTA

Dakota Sash & Door Co Aberdeen
Watertown Sash & Door Co Watertown
Kehm Builders Supply Co Sioux Falls
Farley-Loetscher Co Sioux Falls

TENNESSEE

Scheidegger Woodwork Supply Co Chattanooga
Chandler & Co Inc Knoxville
House-Hassen Hdwe Co Inc Knoxville
Huttig Sash & Door Co Knoxville
C M McClung & Co Inc Knoxville
Cole Mfg Co Memphis
Dyke Brothers Memphis
Fischer Lime & Cement Co Memphis
Memphis Sash & Door Co Memphis
Beasley & Sons Co Nashville
J E Chilton Millwork & Lbr Co Nashville
Nashville Sash & Door Co Nashville
Warren Brothers Co Nashville
Summers Hdwe & Supply Co Johnson City

TEXAS

Amarillo Sash & Door Co Amarillo
Lamb Sash & Door Co Amarillo
Davidson Sash & Door Co Austin
Steves Sash & Door Co Corpus Christi
Buell Lbr & Mfg Co Dallas
Clem Lbr Co Dallas
Lyon-Gray Lumber Co Dallas
Moore & Company Dallas
Crawford Mfg Co El Paso
Southwestern Sash & Door Co Inc El Paso
H H Hardin Sash & Door Co Fort Worth
Texas Sash & Door Co Fort Worth
Southmost Sash & Door Co Harlingen
Detering Company Houston
Dyke Brothers Houston
Houston Sash & Door Co Houston
Galbraith Steel & Supply Co El Paso Lubbock Pecos
Wm Cameron & Co Inc Abilene Austin Beaumont Corpus Christi Fort Worth Harlingen Houston Lubbock Lufkin Odessa San Angelo San Antonio Tyler Waco and Wichita Falls
Geo C Vaughan & Sons Houston and San Antonio
Steves Sash & Door Co Houston and San Antonio
Galbraith Steel & Supply Co Lubbock Marfa Pecos
Lubbock Sash & Door Co Lubbock
Lyon-Gray Lbr Co Paris
Sweetwater Sash & Door Co Sweetwater
C D Shamburger Jr Supply Co Wichita Falls
Grayson Millwork & Supply Co Sherman
Huttig Sash & Door Co of Texas Dallas
United Sash & Door Co Amarillo

VIRGINIA

Building Supplies Corp Norfolk
Sash Door & Glass Corp Richmond
Rocky Mount Mfg Co Inc Rockymount
Holland & Beaman Co Suffolk
Binswanger & Co Richmond
Huttig Sash & Door Co Roanoke

WASHINGTON

Puget Supply Co Seattle 11
Savage Lbr & Mfg Co Renton
F. L. Hartung Co Seattle and Spokane
W P Fuller & Co Seattle Spokane Tacoma Walla Walla & Yakima
Johnson & Lundgren Tacoma
Pacific Mutual Door Co Tacoma
Tacoma Sash & Door Co Tacoma

WEST VIRGINIA

Bluefield Sash & Door Co Bluefield
Carolina Lumber Co Huntington
Foster-Thornburg Hdwe Co Huntington
W H Smith Hardware Co Parkersburg
Martin & Jones Inc Ronceverte
W A Wilson & Sons Inc Wheeling

WISCONSIN

Moore & Galloway Lbr Co Fond du Lac
Burmeister Woodwork Co Milwaukee
Racine Millwork & Supply Co Racine
Ellingers Supply Inc Sheboygan
Wilbur Lbr Co Waukesha
Marquart Millwork Co Oshkosh
Morgan Co of Wisconsin Oshkosh
Radford Co Oshkosh
Curtis Companies Inc Wausau
Wilbur Lbr Co West Allis

Wholesalers of Building Materials

ALABAMA

Birmingham Sash & Door Co Birmingham
Underwood Coal & Supply Co Mobile

ARIZONA

Galbraith Steel & Supply Co Phoenix
O'Malley Lumber Co Phoenix
Southwestern Sash & Door Co Inc Phoenix and Tucson

ARKANSAS

Dyke Bros Fort Smith North Little Rock and Texarkana
Arkmo Lbr Co North Little Rock
Wm Cameron & Co Inc Texarkana

CALIFORNIA

Mathews & De Haven Inc Fresno
Accepted Materials Co Los Angeles
Downes & Spelman 2309 Adeline St Oakland
Special Materials 3330 E 12th St Oakland
Golden State Flooring Co 375 Rhode Island St San Francisco
Harrison Wholesale Co Santa Barbara
Building Matl Distributors Stockton
Reserve Warehouse Inc Oceanside
Pacific Coast Aggregates Inc San Francisco
Perry E Canfield Burbank
R J M Co Los Angeles
Reserve Warehouse Inc Oceanside
Western Bldrs Supply Co San Francisco
Lumbermen's Supply Inc P O Box 150 Sacramento
Wholesale Bldg Supply Inc Oakland

COLORADO

Building Products Jobbers Inc Denver 16
Denver Reserve Supply Co Denver
Hallack & Howard Lbr Co 7th & Larimer Sts Denver
Sterling Lbr & Investment Co Denver
Lumber Dealers Inc Denver and Pueblo

FLORIDA

Stringfellow Supply Co Gainesville
Logan Lbr Co Tampa
Calvit Howell & Co Jacksonville
Bailey's Lbr Yard Inc Miami
Booker & Dickson Inc Tampa
Knight & Wall Co Tampa
Gate City Sash & Door Co Ft Lauderdale and Miami
Dania Lbr & Supply Co Hollywood and Miami
Henderson-Fouraker Lbr Co Jacksonville
Lindsley Lbr Corp P O Box 774 Sta 5 Miami

IDAHO

Atkinson Reilly Co Inc Boise
Continental Lumber Co Boise
Idaho Supplies Inc Grangeville Lewiston and Moscow
Morrison-Merrill & Co Inc Pocatello

ILLINOIS

Alexander Warehouse & Sales Co 20 W Jackson Blvd Chicago; also Aurora Joliet and Urbana
Valley Mercantile Co Elgin
J L Keith & Son Fairfield
Building Supply Co Granite City
Lumber Dealers Supply Co Libertyville
Rock Island Warehouse Sales Co Rock Island
State Line Builders Supply Co South Beloit
Rinkenberger Co Washington
East Side Lumberyard Supply Co East St Louis
Building Products Elkville
Building Materials Wholesale Springfield
Edward Hines Lbr Co 77 W Washington St Chgo and Skokie
Washington Supply Co Washington
Chicago & Riverdale Lbr Co 341 E 136 Pl Chgo
General Roofing & Supply Co 5918 S Ashland Ave Chicago
W E Olsen Co 228 N LaSalle St Chicago
Reserve Supply Corp of Chicago 1529 S Jefferson Chicago

INDIANA

Building Products Co Inc Evansville
Indiana Wholesalers Inc Evansville
Raymond W Stremming Evansville
Curdes Lumber Co Inc Fort Wayne
Great Lakes Distributing Co Ft Wayne and South Bend
Indiana Reserve Supply Co Ft Wayne
Michigan Wholesalers, Inc Fort Wayne
Carter-Lee Lbr. Co Indianapolis
General Sales Co 434 Merchants Bank Bldg Indianapolis
Indianapolis Plywood Co Indianapolis
Lumberman's Wholesale Supply Co Indianapolis
Wabash Valley Lbr. & Supply Co Inc Terre Haute
Midland Building Industries Inc 907 East Michigan St Indianapolis 6 Ind

IOWA

Lumbermen's Associated Buyers Co Inc Cedar Rapids and Des Moines
Tip-Top Distributing Co Cedar Rapids Des Moines and Storm Lake
Williams & Hunting Co Cedar Rapids
Joyce Lbr & Supply Co Council Bluffs
Loetscher & Burch Mfg Co Des Moines
F I Products Co Fort Dodge
Ft Dodge Wholesale Distributing Co Ft Dodge
Thos Mould Lbr Co Sioux City
Perry E Canfield Waterloo
Waterloo Roofing & Supply Co Waterloo
Wood Products Co Waterloo

KANSAS

L J White Lbr Co Hutchinson
Badger Lbr Co Kansas City
T F Martin Lbr Co Topeka
Lumber Dealers Service Co Kansas City
Rock Island Warehouse Sales Co Wichita
Wichita Bldg Material Co Wichita

KENTUCKY

Central Kentucky Supply Co Lexington
Mutual Service Co Inc Louisville
Lumbermen's Wholesale Service Inc Louisville

LOUISIANA

Lumber Dealers Supply Co Inc Baton Rouge
Madison Lumber Co New Orleans
Central Wholesale Co Inc Shreveport

MASSACHUSETTS

Elhide Co Cambridge
Connecticut Valley Reserve Supply Co Springfield
Diamond Match Co Springfield

MICHIGAN

Grand Rapids Reserve Supply Co Grand Rapids
Porter-Hadley Co Grand Rapids
Western Michigan Bldg Material & Supply Co Grand Rapids
Hamar-Quandt Co Houghton
Consolidated Fuel & Lumber Co Ishpeming
Hartwick-Woodfield Co Jackson
Michigan Wholesalers Inc Jackson
Miller Wholesale & Warehouse Co Kalamazoo
Wholesale Lbr Products Co Muskegon
Saginaw Lbr Co Saginaw
Baker Wholesale Co Battle Creek
Kneeland-Bigelow Distributing Co Bay City
Cadillac Wholesale Supply Cadillac
Hansen Wholesale Lbr Corp Dearborn
Dealers Wholesale Supply Inc Detroit
Lumbermen's Wholesale Supply Co Detroit
Wholesale Lbr & Bldg Materials Inc Detroit
Flint Sash & Door Co Inc Flint
Evans & Retting Lbr Co Grand Rapids
Fir-Tex of Michigan Grand Rapids
Central Bldrs Supplies Co Burr Oak

MINNESOTA

F I Products Co St Paul
Reserve Supply Co St Paul
Woodruff Lbr Co 817 Garfield Ave Duluth
Northwest Supplies Co 1200 Central Ave Minneapolis
Rock Island Warehouse Sales Co 1st Nat Bk Bldg St Paul

MISSISSIPPI

Lumbermens Supply Co Jackson

MISSOURI

Four States Supply Co Carthage
Waggener Store Co Festus
Badger Lumber Co Inc Kansas City
Stark & Co Kansas City
Saint Joseph Bldrs Supply Co St Joseph
Lebanon Wholesale Materials Co Lebanon
Dealers Service & Supply Co 8442 St Charles Rock Road St Louis 14
Lumberyard Supply Co St Louis
J C Williamson Dexter
Dyke Bros Joplin and Kansas City
Southwestern Sash & Door Co Joplin
Lumbermen's Supply Co Kansas City and St Joseph
Toombs & Co Springfield

MONTANA

Havre Bldrs Supply Havre

NEBRASKA

Central Lbr Sales Co Lincoln
Joyce Lumber & Supply Co Omaha
Byers Lumber Co Hastings
Chicago Lumber Co of Omaha Omaha
Lumbermen's Brick & Supply Co Omaha

NEVADA

Flanigan Warehouse Co Reno

NEW HAMPSHIRE

Diamond Match Co Dover

NEW JERSEY

Fir-Tex of New Jersey Inc Orange

NEW MEXICO

Southwestern Sash & Door Co Inc Albuquerque
Santa Fe Bldrs Sup Co Santa Fe

NEW YORK

Concord Lumber Co Inc P O Box 1297 Albany 1
Wholesale Service Supply Corp Albany Utica
Mansfield Construction Co 233-02 Merrick Road Rosedale 10 Long Island N Y
Diamond Match Co 30 Church St NYC
Harry R Austin Lbr Co Ouaquaga

NORTH CAROLINA

North State Material Co Asheville
Smith Bldrs Supply Inc Wilmington

NORTH DAKOTA

Minot Bldrs Supply Co Minot
Builders Supply Co Bismarck
Minot Builders Supply Co Williston

OHIO

Athens Flooring Co Athens
Rae Columbus Inc Columbus
Lumbermen's Wholesale Co Ashland
Ashtabula County Wholesale Lbr Co Ashtabula
Industrial Wholesale Lbr Co Cleveland
Reserve Supply Co Warren
Michigan Wholesalers Inc Toledo
Rae Bldg Matls Toledo
Union Wholesale Lbr Co Youngstown

OKLAHOMA

Wm Cameron & Co Inc Altus
Lumbermens Supply Co Oklahoma City
Neal Millwork & Supply Co Oklahoma City
Lumber Mills Sales Co Oklahoma City

OREGON

City Lbr & Supply Co Astoria
Shockley Lbr Co Baker
Twin Oaks Bldrs Supply Co Eugene
Gilbert Hawley Co Portland
Bevil & Co 80 SE Madison St Portland
Howard Teel 4621 NE 12th Ave Portland
Lamb-Schrader Co Tillamook

PENNSYLVANIA

M L Claster & Sons Lock Haven
Philadelphia Reserve Supply Co Philadelphia
Soult Lbr Co Clearfield Pa

SOUTH CAROLINA

Piedmont Wholesale Co Greenville

SOUTH DAKOTA

Jordan Millwork Co Sioux Falls
Lumbermen's Supply Co 617 E 7th Sioux Falls

TENNESSEE

Bristol Builders Supply Co Bristol
Dealers Supply Co Nashville
Dyke Bros 91 W Virginia Ave Memphis

TEXAS

Buell Lumber & Mfg Co Dallas
Wm Cameron & Co Inc Abilene Austin Beaumont Corpus Christi Fort Worth Harlingen Houston Lubbock Lufkin Odessa San Angelo San Antonio Tyler Waco and Wichita Falls
Chambers Lbr Co Dallas
Huttig Sash & Door Co of Texas Dallas
Galbraith Steel & Supply Co El Paso Lubbock Marfa Pecos
Southwestern Sash & Door Co Inc El Paso
G C Cooley Wholesale Lbr & Bldg Matl Fort Worth
Dyke Bros Houston
Geo C Vaughan & Sons Houston Nederland and San Antonio
Lyon-Gray Lbr Co Dallas and Paris
Gulf State Lbr Co Tyler
Nash Robinson & Co Inc Waco
C D Shamburger Jr Supply Co Witchita Falls

UTAH

R W Frank & Co Inc Salt Lake City
Lumber Dealers Supply Salt Lake City
Morrison-Merrill & Co Inc Salt Lake City

VIRGINIA

Mingo Lime & Lbr Co Grundy

WASHINGTON

Building Supplies Inc Spokane
Idaho Supplies Inc Spokane
Stouffer-Bowman Co Aberdeen
Dealers Warehouse Inc 5202 15th Ave NW Seattle
F L Hartung Co Seattle and Spokane
Palmer G Lewis Co 14 Hanford St Seattle
Lockwood Warehouse Corp 2823 Western Ave Seattle
Lumber Supply & Warehouse Co 535 Elliott Ave W Seattle
Exchange Lbr & Mfg Co Spokane
Johnson & Lundgren Tacoma
Puget Supply Co P O Box 1844 Seattle 11 Wash

WEST VIRGINIA

Hartland Planing Mill Co Clarksburg
Mingo Lime & Lbr Co Williamson
H L Seabright Co Wheeling
W A Wilson & Sons Co Wheeling

WISCONSIN

Lumber Dealers Supply Inc Green Bay
Ellingers Supply Co Inc Sheboygan
Falls Dealer Supply Co Sheboygan Falls Wis

Building Products and Equipment Directory

THIS classified list of products, equipment and services used in and by the lumber and building materials industry contains the names of most of the manufacturers and service organizations. For the dealer seeking to expand his lines of merchandise the list should prove helpful.

The directory is presented in streamline style without cross references on the assumption that readers are familiar enough with the use of classified listings to provide their own cross references in those cases where there is reasonable doubt as to the heading under which a particular product or service should be listed. Choice of either the noun or the descriptive adjective as the governing word in determining the classification was made in each case on the basis of which is the dominating word in the opinion of the directory editors.

All product listings are alphabetical except for lumber which will be found in a special section immediately following the other classifications. In this section the types of lumber normally sold by each company are indicated by appropriate symbols.

As readers know many material and equipment shortages have persisted for months since the end of the war. A listing in this directory does not necessarily signify that the material is available in sufficient quanity. It is expected, however, that the production picture will improve during 1947. For this reason the directory has been made as complete as possible. When writing to manufacturers listed herein please mention American Lumberman & Building Products Merchandiser.

ABRASIVES—coated

Abrasive Prod Inc So Braintree Mass
American Floor Surfacing Machine Co Toledo 3 Ohio (208)
Armour Sandpaper Wks 1355 W 31st Chgo Ill
Behr-Manning Corp Troy N Y
Carborundum Co Niagara Falls N Y
Clover Mfg Co Norwalk Conn
Mid-West Abrasive Co Detroit Mich
Minnesota Mining & Mfg Co St Paul Minn
Porter Cable Mach Co Syracuse 8 NY
Red Devil Tools Irvington 11 N J (288)
Sandpaper Inc Rockland Mass
The Wellman Products Co 1444 E 49th Cleveland 3 Ohio

ACOUSTICAL MATERIALS

Armstrong Cork Co Lancaster Pa
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Fir Tex Porter Bldg Portland 4 Ore
Hawaiian Cane Products Inc Culver City Calif
Insulite Div—Minnesota & Ontario Paper Co Baker Arcade Bldg Minneapolis 2 Minn (194-195)
Johns-Manville Sales Corp 22 E 40th New York 16 N Y (224)
Keasbey & Mattison Co Ambler Pa
Lockport Cotton Batting Co Lockport N Y (252-253)
National Gypsum Co Buffalo 2 N Y (198-199)
Pacific Lumber Co 100 Bush San Francisco Cal
Sealcon Products Inc Minneapolis 2 Minn
The Sullivan Co Memphis 2 Tenn
Universal Zonolite Insulation Co 135 S La Salle St Chgo 3 Ill (245)
United Cork Cos South Kearny N J
United States Gypsum Co 300 W Adams Chgo 6 Ill
Wood Conversion Co St Paul 1 Minn

ADHESIVES

Abesto Mfg Corp Michigan City Ind
Armstrong Cork Co Lancaster Pa
Barclay Mfg Co 385 Gerard Av Bronx NY
E L Bruce Co Memphis Tenn (207)
Samuel Cabot Inc 141 Milk St Boston 9
Philip Carey Mfg Co Cincinnati 15 O (235)
Casein Co of America 350 Madison Av NY NY (181)
The Celotex Corp 120 S La Salle Chgo Ill (226-227)
Christy Co Inc St Louis 10 Mo
The Commercial Paste Co Columbus O
Consumers Glue Co St Louis Mo
E I DuPont de Nemours & Co Inc Wilmington Del
Durite Plastics Inc 5000 Summerdale Av Philadelphia 24 Pa
The Flintkote Co Inc 30 Rockefeller Plaza NY NY
H B Fuller Co 255 Eagle St Paul 2 Minn
Insulite Division Minnesota & Ontario Paper Co Baker Arcade Bldg Minneapolis 2 Minn (194-195)
Le Page's Inc Gloucester Mass
Marsh Wall Products Inc Dover Ohio (wallboard mastic) (192)
Minnesota Mining & Mfg Co St Paul Minn
Miracle Adhesives Corp Newark 8 N J
Mixtite Corp North Haven Conn
Monite Waterproof Glue Co Minneapolis 11 Minn
Monsanto Chemical Co 1700 S Second St Louis 4 Mo
National Adhesives 268 Madison Av New York 16 N Y
National Casein Sales 601 W 80th Chgo 20 Ill
Paisley Prod Inc 1770 Canalport Av Chgo 16 Ill
Patent Cereals Co Geneva NY
Perkins Glue Co Lansdale Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Prestile Mfg Co 2860 Lincoln Av Chgo 13 Ill (200)
Reliable Paste Co 3560 Shields Av Chicago Ill
The Resinous Products & Chemical Co Philadelphia 5 Pa
U S Plywood Corp 55 W 44th NY NY (179)
Youngstown Manufacturing Inc Prospect Youngstown 6 Ohio (168) (102)

ADJUSTERS—screen & sash

Casement Hdw Co 406 N Wood St Chgo Ill
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
F D Kees Mfg Co Beatrice Neb
Nat'l Brass Co Grand Rapids Mich
Norwalk Lock Co 395 Broadway NY 13 NY
Penn Hardware Co Reading Pa
The Safe Padlock & Hdw Co Lancaster Pa
Sargent & Co New Haven Conn (295)
Sharon Hardware Mfg Co Sharon Pa
Shelby Spring Hinge Co Shelby O
Sterling Hdw Mfg Co 2341 W Nelson Chgo Ill
Wright Products Co St Paul Park Minn
Yale & Towne Mfg Co Stamford Conn (269)

ADVERTISING MATS—syndicate

Worldwide Syndicate 403 S Akard Dallas Tex (386)

ADVERTISING SPECIALTIES

American Emblem Co Utica N Y
American Rule & Block Co Menominee Mich
General Wood Works Council Bluffs Ia
L F Grammes & Sons Inc Allentown Pa
The Thos D Murphy Co Red Oak Iowa
Parisian Novelty Co 3510 Western Av Chicago 9 Ill
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
The Sanders Mfg Co Nashville Tenn
Shedd Brown Mfg Co Minneapolis Minn
Superior Plastic Co 426 N Oakley Chicago Ill

AIR COMPRESSORS

Allis-Chalmers Mfg Co Milwaukee 1 Wis (398)
Binks Mfg Co 3124 W Carroll Av Chgo Ill
Davey Compressor Co Kent O
The DeVilbiss Company 300 Phillips Av Toledo 1 Ohio
Electric Sprayit Co Sheboygan Wis
Gardner Denver Co Quincy Ill
Ingersoll-Rand Co 11 Broadway New York 4 N Y
Joy Mfg Co Sullivan Div Michigan City Ind
Paasche Airbrush Co 1909 W Diversey Chgo Ill
Worthington Pump & Mchry Corp Harrison N J

AIR CONDITIONING UNITS

American Radiator & Standard Sanitary Corp Bessemer Bldg Pittsburgh 22 Pa
Carrier Corp Syracuse 1 N Y
Chrysler Corp Airtemp Div Dayton 1 O
Excelsior Stove & Mfg Co Quincy Ill
Frigidaire Div Gen'l Motors Sales Corp Dayton O
General Electric Co Schenectady 5 N Y
International Heater Co Utica 2 N Y
Kelvinator Div Nash Kelvinator Corp Detroit Mich
McQuay Inc Minneapolis 13 Minn
Modine Mfg Co Racine Wis
Norge Div Borg Warner Corp Detroit Mich
Penn Boiler & Burner Mfg Corp Box 1079 Lancaster Pa
Round Oak Co Dowagiac Mich
Surface Combustion Corp Toledo 1 Ohio
Trane Co La Crosse Wis
Westinghouse Electric Corp Sturtevant Div Hyde Park Boston 36 Mass (331)
Williams Oil-O-Matic Div Eureka Williams Corp Bloomington Ill

ANCHORS—building

Adams Co Dubuque Ia
W Ames & Co Jersey City N J
Chicago Expansion Bolt Co 1338 W Concord Place Chicago 22 Ill
Cincinnati Iron Fence Co Inc 2101 Florence Av Cincinnati 6 Ohio

Number in parenthesis indicates page on which advertisement appears

Cleveland Steel Specialty Co Inc Cleveland 5 Ohio
The Davis & Siehl Co Cincinnati 23 O
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Ideal Hanger Co 1272 E 53rd Cleveland 14 Ohio (105)
International Steel Co Evansville Ind
M & M Wire Clamp Co 983-17th Av S E Minneapolis 14 Minn
Goodloe E Moore Co Danville Ill
Jos Oat & Sons Phila Pa
Paine Co 2951 Carroll Av Chgo Ill
Stewart Iron Wks Co Inc Cincinnati O
Wilcox Crittenden & Co Inc Middletown Conn

ANCHORS—concrete

Ackerman-Johnson Co 625 W Jackson Blvd Chicago Ill
Bethlehem Steel Co Bethlehem Pa
Chicago Expansion Bolt Co 1338 W Concord Place Chicago 22 Ill
The Davis & Siehl Co Cincinnati 23 O
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Kelly Steel Works Inc 5767 W 65th Chgo 38 Ill
Laclede Steel Co Arcade Bldg St. Louis 1 Mo
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Paine Co 2951 Carroll Av Chicago 12 Ill
Richmond Screw Anchor Co Inc 816 Liberty Av Brooklyn N Y
Star Expansion Bolt Co Inc 147 Cedar New York 6 N Y

ANVILS—saw setting

E C Atkins & Co Indianapolis Ind
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa

APPRAISERS & ESTIMATORS—industrial

American Appraisal Co Milwaukee Wis
General Appraisal Co Seattle 4 Wash
Industrial Appraisal Co Memphis Tenn
Lloyd-Thomas Co Minneapolis Minn
Southwestern Appraisal Co Kansas City Mo
Standard Appraisal Co 6 Church New York 6 N Y

APRONS—carpenter

Bemis Bros Bag Co St Louis 2 Mo
Canvas Products Co St Louis 4 Mo
Clifton Mfg Co Waco Tex
Economy Novelty & Printing Co 225 W 39th NY NY
Fulton Bag & Cotton Mills Atlanta Ga
The Kemper Thomas Co Cincinnati 12 Ohio
Minnesota Specialty Co Second Av N & 4th Minneapolis Minn
Parisian Novelty Co 3510 S Western Av Chicago 9 Ill
Troy Sunshade Co Troy O
Tucker Duck & Rubber Co Fort Smith Ark
Werner Canvas Products Co 607 Bergen Brooklyn 17 N Y

ARCHES—wood, laminated

Concord Woodworking Co West Concord Mass
Rilco Laminated Products Inc St Paul 1 Minn
Timber Structures Inc Portland 8 Ore
Unit Structures Inc Peshtigo Wis

AREA WALLS—steel

Bilco Mfg Co New Haven 6 Conn
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Gabriel Steel Co Detroit Mich
Kewanee Mfg Co Kewanee Ill
Penn Metal Co Inc Parkersburg W Va (359)
St Paul Corrugating Co St Paul 1 Minn
Sealcon Products Inc Minneapolis 2 Minn
Wheeling Corrugating Co Wheeling W Va (357)

ASH DUMPS

Adams Co Dubuque Iowa
Bennett-Ireland Norwich NY (264)
Copco Steel & Engineering Co 14035 Grand River Av Detroit 27 Mich
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Eastern Connecticut Welding Corp New London Conn
Gabriel Steel Co Detroit Mich
Hart Mfg Co Louisville 3 Ky
Heatilator Inc Syracuse N Y (256)
Kewanee Mfg Co Kewanee Ill
Majestic Co Huntington Ind (105)
Geo L Mesker Steel Corp Evansville Ind
Peerless Mfg Co Louisville 10 Ky
Sealcon Products Inc Minneapolis 2 Minn
Superior Fireplace Co Los Angeles Cal (261)
A L Swett Iron Wks Medina N Y
Western Fdry Co Portland 1 Ore

AWNINGS—store & residence

American Tent & Awning Co 1132 Mission San Francisco Calif
Canvas Products Co St Louis 4 Mo
Clifton Mfg Co Waco Texas
W E Hettrick & Son Co Toledo 1 Ohio
Indestructo Awning Co 54 W Grand Av Chgo Ill
New York Awning Inc 401 W 36th New York 18 N Y
The F C Russell Co Cleveland 15 Ohio
Tucker Duck & Rubber Co Fort Smith Ark
United Tent & Awning Co 759 N Spring Los Angeles Calif

BALING PRESSES

American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
Economy Baler Co Ann Arbor Mich
Famous Mfg Co East Chicago Ind
Lewis T Kline Co Alpena Mich (excelsior)

BALUSTERS—metal

Adams Co Dubuque Iowa
The Davis & Siehl Co Cincinnati 23 O
Logan Co Inc Louisville 6 Ky
Metal Crafters Division Castone Products Co Cedar Rapids Iowa (305)
Southern Wire & Iron Works Atlanta Ga
Stewart Iron Wks Co Inc Cincinnati O

BALUSTERS—wood

Carr Adams & Collier Co Dubuque Ia (131)
Farley & Loetscher Mfg Co Dubuque Iowa
Fordyce-Crossett Sales Co Fordyce Ark
Morgan Co Oshkosh Wis
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Frank C Snedaker & Co Inc Philadelphia 40 Pa

BARBECUE SPITS

The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Hancock Iron Wks Pontiac 14 Mich
Ironcraft Inc San Jose 11 Calif
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Allen Selby Assoc 1836 Chase Av Chgo Ill
Southern Wire & Iron Works Atlanta Ga

BARN EQUIPMENT—farm

Badger Corrugating Co La Crosse Wis
Berg Equip Corp Marshfield Wis
H D Hudson Mfg Co 589 E Illinois Chgo Ill (311)
Klauer Mfg Co Dubuque Ia
Louden Mach Co Fairfield Ia
Mitchell Mfg Co Milwaukee 7 Wis
The Ney Mfg Co 948 High Av S W Canton 4 Ohio
Olson Mfg Co Albert Lea Minn
Starline Inc Harvard Ill
Jonas A Swenson Co Springfield So Dak
U S-Challenge Co Batavia Ill

BATHROOM ACCESSORIES

The Autoyre Co Oakville Conn
Conant Bros Co 34 Portland St Boston 14 Mass
General Wood Works Council Bluffs Ia
Gerity-Adrian Corp Adrian Mich
Gold Seal Mfg Co 1228 W Kinzie Chgo 22 Ill
Marsh Wall Products Inc Dover Ohio (192)
Miami Cabinet Div Philip Carey Mfg Co Middletown O
Chas Parker Co Meriden Conn
S Parker Hardware Mfg Corp 27 Ludlow St New York 2 N Y
H B Salter Mfg Co Marysville Ohio
Superior Plastic Co 426 N Oakley Chicago Ill
Turner & Seymour Mfg Co Torrington Conn
Youngstown Manufacturing Inc 66 S Prospect Youngstown 6 Ohio (102)

BATTERIES—farm lighting

Buda Co Harvey Ill
Delco Appliance Div Gen'l Motor Sales Corp Rochester N Y
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Globe Union Inc Milwaukee 1 Wis
Kohler Co Kohler Wis
Rand-Williams Mfg Co Inc 377 Broadway New York 13 N Y
Universal Batt Co 3410 S La Salle Chgo Ill

BEDS—disappearing

Evansville Metal Bed Co Evansville Ind
Los Angeles Wall Bed Co Los Angeles Cal
Murphy Door Bed Co 30 N LaSalle Chgo 2 Ill
Roll-A-Way Corp 2954 N Sheffield Av Chicago Ill
Simmons Co 383 Madison Av NY NY
Superior Sleeprite Corp 2219 S Halsted Chgo Ill

BELT LACING EQUIPMENT

Alexander Brothers 406 N 3rd Philadelphia 23 Pa
Clipper Belt Lacer Co Grand Rapids 2 Mich
Flexible Steel Lacing Co 4607 Lexington Chgo Ill
Webb Belting Co Kansas City 7 Mo

BELTING—conveyor

Acme Rubber Mfg Co Trenton N J
Boston Woven Hose & Rubber Co Cambridge Mass
Broadway Rubber Mfg Co Louisville Ky
The Cincinnati Rubber Mfg Co 4900 Franklin Av Cincinnati Ohio
Victor R. Clark Belting Co 605 W Washington Chgo 6 Ill
R & J Dick Co Inc Passaic N J
The B F Goodrich Co Akron Ohio
Jeffrey Mfg Co Columbus 16 Ohio
Link-Belt Co 300 W Pershing Rd Chgo 9 Ill
New York Rubber Corp Empire State Bldg New York 1 N Y
Raybestos-Manhattan Inc Manhattan Rubber Div Passaic N J
Republic Rubber Div Lee Rubber & Tire Corp Youngstown 1 Ohio
Thermoid Rubber-Div Thermoid Co Trenton 6 N J
United States Rubber Co 1230 6th Av New York 20 N Y
Webb Belting Co Kansas City 7 Mo

BELTING—transmission

Alexander Brothers 406 N 3rd Philadelphia 23 Pa
Bay State Belting Co 234 Summer St Boston 10 Mass
Chicago Belting Co 121 N Green Chgo Ill.
Chicago Rawhide Mfg Co 1301 Elston Av Chgo Ill
Victor R. Clark Belting Co 605 W Washington Chgo 6 Ill
Graton & Knight Co Worcester 4 Mass
Edw R Ladew Co 128 Lafayette NY NY
Page Belting Co Concord N H
Raybestos-Manhattan Inc Passaic N J.
J E Rhoads & Son 35 N 6th Philadelphia 6 Pa

Number in parenthesis indicates page on which advertisement appears

Chas A Schieren Co 30-38 Ferry NY 7 NY
Warren Belting Co Worcester Mass
Webb Belting Co Kansas City 7 Mo
I B Williams & Sons Dover N H

BELTING DRESSING & CEMENT

Bay State Belting Co 234 Summer St Boston 10 Mass
Broadway Rubber Mfg Co 529 E Broadway Louisville 2 Ky
Jos Dixon Crucible Co Jersey City 3 N J
E I DuPont de Nemours & Co Inc Wilmington 98 Del
Ensign Products Co Cleveland 5 Ohio
The B F Goodrich Co Akron Ohio
Graton & Knight Co Worcester 4 Mass
Inter-State Oil Co Kansas City 3 Kan
Page Belting Co Concord New Hampshire
J E Rhoads & Son 35 N 6th Philadelphia 6 Pa
Richmond Belt Dressing Mfg Co Inc Richmond 20 Va (dressing only)
Chas A Schieren Co 30-38 Ferry NY 7 NY
The Sullivan Co P O Box 2606 Memphis 2 Tenn

BINS—grain

Arrow Tank Co Inc Buffalo 14 N Y
Badger Corrugating Co La Crosse Wis
W E Caldwell Co Louisville 8 Ky
Dempster Mill Mfg Co Beatrice Neb
Fordyce-Crossett Sales Co Fordyce Ark
The Green Lumber Co Laurel Miss
Illinois Wire & Mfg Co Joliet Ill (314)
Kalamazoo Tank & Silo Co Kalamazoo Mich
Midwest Steel Products Co Kansas City Mo (steel)
R Munroe & Sons Mfg Corp Pittsburgh 22 Pa
Stephens-Adamson Mfg Co Aurora Ill
Wheeling Corrugating Co Wheeling W Va (357)

BINS—nail & bolt

All-Steel Equip Co Aurora Ill
Cleveland Wire Spring Co 5250 Brookpark Road Cleveland 9 Ohio
Deluxe Metal Furniture Co Warren Pa
Equipto Div of Aurora Equipment Co Aurora Ill
Frick-Gallagher Mfg Co Wellston O
Gen'l Fireproofing Co Youngstown O
W C Heller & Co 539 N Clark St Montpelier Ohio
Stackbin Corp Providence R I
Universal Steel Equipment Corp 135 W 23rd NY NY

BITS—auger

American Screw Co Providence R I
Greenlee Bros & Co Rockford Ill
Mephisto Tool Co Inc Hudson NY
Oxford Tool Co Phil 22 Pa
The Stanley Wks New Britain Conn (272)
The Wellman Products Co Cleveland 3 Ohio

BITS—saw

American Saw Mill Mchry Co Hackettstown N J
E C Atkins & Co Indianapolis Ind
Ekstrom, Carlson & Coe Rockford Ill
R Hoe & Co Inc East River & 138th NY NY
E T Lippert Saw Co Pittsburgh 9 Pa
Miner & Son Saw Works P O Box 1145 Shreveport 90 La
Southern Saw Wks Atlanta Ga

BLOCKS—tackle

Clyde Iron Works Inc Duluth 1 Minn
Lanebro Mfg Co Poughkeepsie N Y
Maine Steel Products Inc South Portland Maine
John A Roebling's Sons Co Trenton N J
Starline Inc Harvard Ill
Upson-Walton Co Cleveland Ohio
Washington Iron Works Seattle 4 Wash
Western Block Co Lockport N Y

BLOWER SYSTEMS—sawmill & planing mill

Allington & Curtis Mfg Co Saginaw Mich
Champion Blower & Forge Co Lancaster Pa
Chase Turbine Mfg Co Orange Mass
Clarage Fan Co Kalamazoo 16 Mich
Connecticut Blower Co P O Box 884 Hartford 1 Conn
Corinth Machinery Co Corinth Miss (388)
Houston Blow Pipe & Sht Mtl Wks Houston Tex (400-401)
Jacksonville Blow Pipe Jacksonville Fla
Kirk & Blum Mfg Co Cincinnati O
New York Blower Co 415 Lexington Av NY NY
St Louis Blow Pipe & Heater Co St Louis Mo
Western Blower Co Seattle Wash

BOARD—asbestos cement

Acme Asbestos Covering & Flooring Co 244 N Elizabeth Chgo 7 Ill
Philip Carey Mfg Co Cincinnati 15 O (235)
Celotex Corp 120 S La Salle Chgo Ill (226-227)
The Flintkote Co 30 Rockefeller Plaza New York 20 N Y
Homasote Co Trenton N J
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Keasbey & Mattison Co Ambler Pa
National Gypsum Co Buffalo 2 N Y (198-199)
The Ruberoid Co 500 5th Ave NY 18 NY (196)

BOARD—cement asbestos, encased insulation

The Celotex Corp 120 S La Salle St Chgo 3 Ill (226-227)

BOARDS—sign

Fordyce-Crossett Sales Co Fordyce Ark
The Green Lumber Co Laurel Miss
M & M Wood Working Co Resaprest Div 2301 N Columbia Portland 3 Ore
The Upson Co Lockport N Y (190)

BOILERS—steam & hot water

Bastian-Morley Co Inc La Porte Ind
Brownell Co Dayton 1 Ohio
Century Engineering Corp Cedar Rapids Iowa
Edge Moor Iron Co Edge Moor Del
Erie City Iron Wks Erie Pa
Harvey Whipple Inc Springfield Mass
Hedges-Walsh-Weidner Co Chattanooga Tenn
Kewanee Boiler Corp Kewanee Ill
Lookout Boiler & Mfg Co Chattanooga Tenn
R Munroe & Sons Mfg Corp Pittsburgh 22 Pa (hot water only)
National Radiator Co 221 Central Av Johnstown Pa
Penn Boiler & Burner Mfg Corp Box 1079 Lancaster Pa
Richmond Radiator Co 835 Fifth Av NY 17 NY
Williams Oil-O-Matic Div Eureka Williams Corp Bloomington Ill
Gar Wood Industries Inc Detroit Mich
York—Shipley Inc York Pa

BOLTS—barrel

Fiwale Equipment Mfg Co 165 Church New York 7 N Y
Frantz Mfg Co Sterling Ill (298)
Griffin Mfg Co Erie Pa
The Lamson & Sessions Co Cleveland 2 Ohio
Norwalk Lock Co 395 Broadway New York 13 N Y
Penn Hardware Co Reading Pa
Safe Padlock & Hardware Co Lancaster Pa
Sargent & Co New Haven 9 Conn (295)
Sharon Hardware Mfg Co Sharon Pa
Slaymaker Lock Co Lancaster Pa

BOLTS—carriage

Atlas Bolt & Screw Co Cleveland 10 O
Clark Bros Bolt Co Milldale Conn
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
The Lamson & Sessions Co Cleveland 2 Ohio
Lewis Bolt & Nut Co Minneapolis 14 Minn
Manufacturers Screw Prod 222 W Hubbard Chgo 10 Ill
The Maryland Bolt & Nut Co Baltimore 9 Md
National Lock Co Rockford Ill (293)
National Screw & Mfg Co Cleveland 4 Ohio
Pheoll Mfg Co 5700 W Roosevelt Rd Chgo Ill
Republic Steel Corp Cleveland O
Rockford Screw Products Co Rockford Ill
Rockford Bolt & Steel Co 126 Mill Rockford Ill
Russell Burdsall & Ward Bolt & Nut Co Port Chester NY
St Louis Screw & Bolt Co St Louis Mo
Sterling Bolt Co 209 W Jackson Blvd Chgo 6 Ill

BOLTS—chain

Frantz Mfg Co Sterling Ill (298)
Griffin Mfg Co Erie Pa
The Lamson & Sessions Co Cleveland 2 Ohio
McKinney Mfg Co Pittsburgh Pa
Nat'l Brass Co Grand Rapids Mich
Norwalk Lock Co 395 Broadway NY 13 NY
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Penn Hardware Co Reading Pa
Reading Hdw Corp Reading Pa
Richards-Wilcox Mfg Co Aurora Ill
Safe Padlock & Hdw Co Lancaster Pa
Sargent & Co New Haven Conn (295)
Segal Lock & Hdwe Co Inc 395 Broadway NY 13 NY
Sharon Hdwe Mfg Co Sharon Pa
The Stanley Wks New Britain Conn (272)
Starline Inc Harvard Ill
Wagner Mfg Co Cedar Falls Iowa
Yale & Towne Mfg Co Stamford Conn (269)

BOLTS—concrete

W Ames & Co Jersey City 4 N J
Cleveland Steel Specialty Co Cleveland 5 Ohio
Frantz Mfg Co Sterling Ill (298)
Kelly Steel Works Inc 5767 W 65th Chgo 38 Ill
The Lamson & Sessions Co Cleveland 2 Ohio
S Parker Hardware Mfg Corp 27 Ludlow St New York 2 N Y
St Louis Screw & Bolt Co St Louis 15 Mo
Richmond Screw Anchor Co Inc 816 Liberty Av Brooklyn 8 N Y

BOLTS—door & window

Casement Hdw Co 406 N Wood Chgo Ill
Fiwale Equipment Mfg Co 165 Church New York 7 N Y
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Inc Philadelphia 40 Pa
Griffin Mfg Co Erie Pa
The Lamson & Sessions Co Cleveland 2 Ohio
Nat'l Brass Co Grand Rapids Mich
Norwalk Lock Co 395 Broadway NY 13 NY
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Penbody-Acker Inc 5816 Hooper Ave Los Angeles Calif (291)
Penn Hardware Co Reading Pa
Safe Padlock & Hdw Co Lancaster Pa
Sargent & Co New Haven Conn (295)
Segal Lock & Hdwe Co Inc 395 Broadway NY 13 NY
The Stanley Wks New Britain Conn (272)
Yale & Towne Mfg Co Stamford Conn (269)

BOLTS—expansion

Ackerman-Johnson Co 625 W Jackson Blvd Chicago 6 Ill
Arro Expansion Bolt Co Marion Ohio
Chicago Expansion Bolt Co 1338 W. Concord Place Chicago 22 Ill
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Newhall Chain Forge & Iron Co 48 W Broadway New York 7 N Y
Paine Co 2951 Carroll Av Chgo Ill
Rawlplug Co Inc 271 Church St New York 13 N Y
Star Expansion Bolt Co 147 Cedar NY NY
United Screw & Bolt Corp Cleveland O
U S Expansion Bolt Co York Pa

Number in parenthesis indicates page on which advertisement appears

BOLTS—foot

Allith-Prouty Inc Danville Ill
P & F Corbin New Britain Conn
Frantz Mfg Co Sterling Ill (298)
The Lamson & Sessions Co Cleveland 2 Ohio
McKinney Mfg Co Pittsburgh 12 Pa
S Parker Hardware Mfg Co 27 Ludlow St New York 2 N Y
Penn Hardware Co Reading Pa
Reading Hardware Corp Reading Pa
Sargent & Co New Haven 9 Conn (295)
Sharon Hardware Mfg Co Sharon Pa
Shelby Spring Hinge Co Shelby Ohio
The Stanley Works New Britain Conn (272)
Wagner Mfg Co Cedar Falls Iowa
Wayne Mfg Co 5259 Western Av Detroit 10 Mich

BOLTS—garage door

Allith-Prouty Danville Ill
Atlas Bolt & Screw Co Cleveland 10 O
Frantz Mfg Co Sterling Ill (298)
Griffin Mfg Co Erie Pa
The Lamson & Sessions Co Cleveland 2 Ohio
McKinney Mfg Co Pittsburgh Pa
National Mfg Co Sterling Ill
Richards-Wilcox Mfg Co Aurora Ill
St Louis Screw & Bolt Co St Louis 15 Mo
Sargent & Co New Haven Conn (295)
Sharon Hdwe Mfg Co Sharon Pa
The Stanley Wks New Britain Conn (272)
Starline Inc Harvard Ill
Wagner Mfg Co Cedar Falls Iowa
Yale & Towne Mfg Co Stamford Conn (269)

BOLTS—machine

W Ames & Co Jersey City 4 N J
Atlas Bolt & Screw Co Cleveland 10 O
Clark Bros Bolt Co Milldale Conn
Columbia Nut & Bolt Co Bridgeport 3 Conn
Wm H Haskell Mfg Co Pawtucket R I
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Kelly Steel Works Inc 5767 W 65th Chgo 38 Ill
The Lamson & Sessions Co Cleveland 2 Ohio
Lewis Bolt & Nut Co Minneapolis 14 Minn
Maryland Bolt & Nut Co Baltimore 9 Md
Nat'l Screw & Mfg Co Cleveland O
Pheoll Mfg Co 5700 W Roosevelt Rd Chgo Ill
Republic Steel Corp Cleveland 1 Ohio
Rockford Bolt & Steel Co 126 Mill Rockford Ill
Russell Burdsall & Ward Bolt & Nut Co Port Chester NY
St Louis Screw & Bolt Co St Louis Mo
Sterling Bolt Co 209 W Jackson Blvd Chgo 6 Ill

BOLTS—stove

American Screw Co Providence R I
Atlas Bolt & Screw Co Cleveland 10 O
Clark Bros Bolt Co Milldale Conn
Continental Screw Co New Bedford Mass
The Lamson & Sessions Co Cleveland 2 Ohio
Manufacturers Screw Prod 222 W Hubbard Chgo 10 Ill
Maryland Bolt & Nut Co Baltimore 9 Md
National Lock Co Rockford Ill (293)
Nat'l Screw & Mfg Co Cleveland O
Pheoll Mfg Co 5700 W Roosevelt Chgo Ill
Reed & Price Mfg Co Worcester 1 Mass (slotted & recessed)
Rockford Screw Prod Co Rockford Ill
Russell Burdsall & Ward Bolt & Nut Co Port Chester NY
St Louis Screw & Bolt Co St Louis Mo
Sterling Bolt Co 209 W Jackson Blvd Chgo 6 Ill
United Screw & Bolt Corp Cleveland 2 O

BOLTS—toggle

Ackerman-Johnson Co 625 W Jackson Blvd Chicago 6 Ill
Arro Expansion Bolt Co Marion Ohio
Chicago Expansion Bolt Co 1338 W Concord Place Chicago 22 Ill
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
The Lamson & Sessions Co Cleveland 2 Ohio
Newhall Chain Forge & Iron Co 48 W Broadway New York 7 N Y
Paine Co 2951 Carroll Av Chgo Ill
Star Expansion Bolt Co 147 Cedar NY NY
United Screw & Bolt Corp Cleveland 2 O
U S Expansion Bolt Co York Pa

BOOKS—building, estimating

All books listed below are for sale by AMERICAN LUMBERMAN INC., 139 N. Clark St., Chicago 2, Ill.

Blue Print Reading	$1.50
Carpentry	2.50
Douglas Fir Use Book	1.50
Estimating Building Costs	5.50
Southern Pine Manual of Standard Wood Construction	1.75
Steel Square Pocket Book	1.25
The Carpenters' Square and Its Uses	.25
Wood Construction, Principles, Practices, Details	6.50
Wood Mouldings	1.00
Wood Structural Design Data	2.50

BOOKS—calculating lumber footage

Handy Lumber Calculator	.50
Official Estimator	6.00
Official Feetage Estimator	10.00
Pocket Pricer	1.25

BOOKS—forestry

Elements of Forest Mensuration	$3.50
Handbook of the Trees of Northern States and Canada	6.00
Logging—Principles and Practice	3.50
Logging—Transportation	4.00
Timber Cruising Manual and Record	.75
Timber Products and Industries	3.50
Woodsman's Manual	3.25

BOOKS—grading rules

Standard Grading and Dressing Rules for Douglas Fir, Sitka Spruce West Coast Hemlock Western Red Cedar	.50
Standard Grading Rules for Ponderosa Pine, Sugar Pine, Idaho White Pine, Lodgepole Pine, Larch-Douglas Fir, White Fir, Engelmann Spruce, Incense Cedar, Red Cedar Lumber	.50
Standard Grading Rules for Northern Pine, Norway Pine, Jack Pine, Eastern Spruce, Western White Spruce, Balsam, Tamarack, Aspen	.50
Standard Specifications for Southern Pine Lumber	.50
Rules for the Measurement and Inspection of Hardwood Lumber, Cypress, Veneers and Thin Lumber	.50

BOOKS—stair building

Stair Builders Guide	$3.50

BOOKS—store & yard design

Modern Store & Yard Design	.50

BOOKS—wood utilization, properties

Identification of the Timbers of Temperate North America	3.50
Lumber & Its Uses	4.00
Plywoods—Development & Manufacture	4.00
The Properties & Uses of Wood	3.50
This Fascinating Lumber Business	4.00

BOOKS—house designs, plans

Practical Plans for Modern Homes —A 36-page booklet containing 51 actual house plans. Sample copy 50c. AMERICAN LUMBERMAN INC Chicago 2 Ill
Brown-Blodgett Co St Paul Minn
L F Garlinghouse Co Topeka Kan
Lumbermans Plan Service 135 Machin Peoria Ill (386)
National Plan Service Inc 1315 W Congress Chgo Ill

BOOKS—miscellaneous

"Rafter Lengths Book"—Builders Topics 1117 2nd Av Seattle Wash
The Commercial Timbers of Mexico—Arnold Joerns Dept A 333 N Michigan Av Chicago 1 Ill
"Tailored Homes" house plans & designs H P Jones 486AL Brandeis Th Bldg Omaha 2 Neb

BOOKS—tally

Frank R Buck & Co 2133 Touhy Av Chgo Ill (409)

BOXES—mitre

McGrath-St Paul Co 242 E Fifth St St Paul 1 Minn
Millers Falls Co Greenfield Mass
The Stanley Wks New Britain Conn (272)
Youngstown Manufacturing Inc 66 S Prospect Youngstown 6 Ohio (102)

BOXES—mortar mixing

American Steel Works Kansas City 8 Mo
The Donley Bros Co 1392S Miles Av Cleveland 5 Ohio (83-98)
Heltzel Steel Form & Iron Co Warren O
Jackson Mfg Co Harrisburg Pa
Kewanee Mfg Co Kewanee Ill
Metal Prod Corp Weehawken N J
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
A L Swett Iron Wks Medina N Y
Truscon Steel Co Youngstown 1 Ohio
White Pine Sash Co Spokane 7 Wash

BRACES—garage door

Champion Hdw Co Geneva O
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Lawrence Bros Sterling Ill
National Mfg Co Sterling Ill
Sharon Hardware Mfg Co Sharon Pa
Shelby Spring Hinge Co Shelby O
The Stanley Wks New Britain Conn (272)
Turnbuckles Inc 650 W Lake St Chicago 6 Ill (also screen door)
Wagner Mfg Co Cedar Falls Iowa

BRACKETS—roof

Adams Co Dubuque Ia
The Davis & Siehl Co Cincinnati 23 O
Gardner Mfg Co Horicon Wis
Newark Ladder & Bracket Sales Co Inc 657 S 13th Newark 3 NJ
The Stanley Wks New Britain Conn (272)
John S Tilley Ladders Co Watervliet N Y
Wagner Mfg Co Cedar Falls Iowa

BRACKETS—shelf

American Cabinet Hardware Corp Rockford Ill (285)
Frantz Mfg So Sterling Ill (298)
Griffin Mfg Co Erie Pa
W C Heller & Co 539 N Clark St Montpelier Ohio
Knape & Vogt Mfg Co Grand Rapids Mich
Lawrence Bros Sterling Ill
McKinney Mfg Co Pittsburgh Pa
Nat'l Brass Co Grand Rapids Mich
Safe Padlock & Hdw Co Lancaster Pa
Slaymaker Lock Co Lancaster Pa
The Stanley Wks New Britain Conn (272)
Watertown Table-Slide Corp Watertown Wis (folding)

BRACKETS—wall

The Davis & Siehl Co Cincinnati 23 O
Fiwale Equipment Mfg Co 165 Church NY 7 NY
W C Heller & Co 539 N Clark St Montpelier Ohio

Number in parenthesis indicates page on which advertisement appears

Newark Ladder & Bracket Sales Co Inc 657 S 13th Newark 3 NJ
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
A L Swett Iron Wks Medina NY
Watertown Table-Slide Corp Watertown Wis (folding)

BRAZERS—band saw

Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Oliver Machinery Co Grand Rapids 2 Mich
Prescott Co Menominee Mich
Yates American Mach Co Beloit Wis

BRICK—common

Acme Brick Co Ft Worth Texas
Adel Clay Products Co Des Moines Ia
Baltimore Brick Co Baltimore 5 Md
Denver Sewer Pipe & Clay Co Denver 1 Colo
Great Falls Brick Co Great Falls Mont
Illinois Brick Co 228 N La Salle Chgo Ill
Sealcon Products Inc Minneapolis 2 Minn
Sheffield Brick & Tile Co Sheffield Ia
Washington Brick & Lime Co Spokane Wash

BRICK—face

Acme Brick Co Ft Worth Texas
Adel Clay Products Co Des Moines Ia
Baltimore Brick Co Baltimore 5 Md
S R Dee Bloomingdale Ind
Denver Sewer Pipe & Clay Co Denver 1 Colo
W E Dunn Mfg Co Holland Mich
Evans Pipe Co Uhrichsville Ohio
Great Falls Brick Co Great Falls Mont
Sealcon Products Inc Minneapolis 2 Minn
Sheffield Brick & Tile Co Sheffield Ia
Washington Brick & Lime Co Spokane Wash

BRICK—fire

Acme Brick Co Ft Worth Texas
Cannelton Sewer Pipe Co Inc Cannelton Ind
Chicago Fire Brick Co 1467 Elston Av Chgo Ill
S R Dee Bloomingdale Ind
Denver Fire Clay Co Denver Colo
Denver Sewer Pipe & Clay Co Denver 1 Colo
General Refractories Co Real Estate Trust Bldg Phil 7 Pa
Great Falls Brick Co Great Falls Mont
Harbison Walker Refractories Co Farmers Bank Bldg Pittsburgh Pa
Mexico Refractories Co Mexico Mo
North American Refractories Co Cleveland 14 O
Plibrico Jointless Firebrick Co 1800 N Kingsbury Chgo 14 Ill
Robinson Clay Prod Co Akron Ohio
Seaboard Refractories Co Perth Arboy N J
Sealcon Products Inc Minneapolis 2 Minn
Walsh Refractories Corp St Louis 7 Mo
What Cheer Clay Products Co What Cheer Iowa

BRICK—glazed

Denver Sewer Pipe & Clay Co Denver 1 Colo
Washington Brick & Lime Co S 151 Washington St Spokane 8 Wash

BRICKS—rubbing

American Emery Wheel Works Providence R I
Carborundum Co Niagara Falls N Y
Chicago Wheel & Mfg Co 100 S Aberdeen Chgo Ill
Simonds Abrasive Co Philadelphia 37 Pa
Sterling Grinding Wheel Div of the Cleveland Quarries Co Tiffin Ohio

BRIDGING—steel

The Davis & Stehl Co Cincinnati 23 O
Decatur Iron & Steel Co Decatur Ala
Great Lakes Steel Corp Stran-Steel Div Detroit 26 Mich
Lanebro Mfg Co Poughkeepsie N Y
Republic Steel Corp Cleveland 1 Ohio
St Paul Foundry & Mfg Co St Paul 3 Minn
Wheeling Corrugating Co Wheeling W Va (357)

BRUSHES—household

American Brush Corp 1119 N Franklin Chgo 10 Ill
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
E Z Paintr Corp Fond du Lac Wis
J I Holcomb Mfg Co Indianapolis Ind
Illinois Duster & Brush Co 1926 Webster Ave Chgo Ill
Michigan Brush Mfg Co Detroit Mich
National Brush Co Aurora Ill
Osborn Mfg Co Cleveland 14 Ohio
Schaefer Brush Mfg Co Milwaukee 4 Wis
Silver-Chamberlin Co Clayton N J

BRUSHES—industrial

Black & Decker Mfg Co Towson 4 Md
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Haisler Bros Co Inc 219 W Superior Chgo Ill
J I Holcomb Mfg Co Indianapolis Ind
Illinois Duster & Brush Co 1926 Webster Ave Chgo Ill
Industrial Chemical Laboratories Ltd Omaha 2 Neb
Markwell Mfg Co Inc 200 Hudson St New York 13 N Y (304)
Michigan Brush Mfg Co Inc Detroit Mich
Milwaukee Brush Mfg Co Milwaukee Wis
National Brush Co Aurora Ill
Newark Brush Co Kenilworth N J
The Osborn Mfg Co Cleveland 14 Ohio
Schaefer Brush Mfg Co Milwaukee 4 Wis
Spiral Brushes Inc Cleveland Ohio

BRUSHES—paint & varnish

Baker Brush Co Inc 83 Grand St NY NY
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
The Glidden Co Cleveland 2 Ohio
Markwell Mfg Co Inc 200 Hudson New York 13 N Y (304)
The Osborn Mfg Co Cleveland 14 Ohio
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (177)
Rubberset Co 56 Ferry Newark 5 N J
Sealcon Products Inc Minneapolis 2 Minn
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Solo-Horton Brush Co Inc 135 W 19th New York 11 N Y
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
Whiting-Adams Co 710 Harrison Av Boston
Wooster Brush Co Wooster Ohio

BULKHEADS—cellar

Bilco Mfg Co New Haven 6 Conn

BURGLAR ALARMS

J H Bunnell & Co 215 Fulton NY NY
Edwards & Co Inc Norwalk Conn
Federal Elec Co 8706 S State Chgo Ill
Genl Burglar Alarm Co Inc 365 E 146th NY NY
Guardian Elec Mfg Co 1400 W Washington Chgo Ill
Southern Wire & Iron Works Atlanta Ga

BURNERS—coal

Athens Stove Works Athens Tenn
Atlanta Stove Works Inc Atlanta Ga
Copper Clad Malleable Range Co St Louis Mo
Eagle Stove Works Rome Ga
Estate Stove Co Hamilton Ohio
Laurelton Foundry Co Inc Laurelton Pa
Locke Stove Co 114 W 11th St Kansas City 6 Mo
Quincy Stove Mfg Co Quincy Ill
Washington Stove Works Everett Wash

BURNERS—gas

American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
Barber Gas Burner Co Cleveland O
Century Specialty Co Johnstown Pa
General Electric Co Schenectady 5 N Y
National Airoil Burner Co Philadelphia 34 Pa
Norge Heating & Conditioning Div Borg Warner Corp Detroit Mich
Penn Boiler & Burner Mfg Corp Lancaster Pa
Surface Combustion Corp Toledo 1 Ohio

BURNERS—gasoline pressure

American Gas Mach Co Inc Albert Lea Minn
Otto Bernz Co Rochester N Y

BURNERS—oil

American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
Automatic Burner Corp 1823 W Carroll Chgo 12 Ill
Century Eng Corp Cedar Rapids Iowa
Chalmers Oil Burner Co Minneapolis Minn
Cleveland Steel Prod Corp Cleveland O
Excelsior Stove & Mfg Co Quincy Ill
Fluid Heat Inc Baltimore Md
Franklin Oil Heating Inc Columbus O
General Electric Co Schenectady 5 N Y
Gilbert & Barker Mfg Co West Springfield Mass
Hart Oil Burner Co Peoria Ill
H C Little Burner Co Inc 2nd & Lincoln San Rafael Cal (263)
The Macleod Co Cincinnati 22 Ohio
May Oil Burner Corp Baltimore Md
National Airoil Burner Co Philadelphia 34 Pa
Penn Boiler & Burner Mfg Corp Box 1079 Lancaster Pa
Round Oak Co Dowagiac Mich
Silent Automatic Corp Detroit Mich
Silent Glow Oil Burner Corp Hartford Conn
Silent Sioux Oil Burner Corp Orange City Iowa
Simplex Oil Heating Corp 11 Park Pl NY 7 NY
Timken Silent Automatic Div The Timken Detroit Axle Co Detroit 32 Mich
Harvey Whipple Inc Springfield Mass
Williams Oil-O-Matic Div Eureka Williams Corp Bloomington Ill
Gar Wood Industries Inc Detroit 11 Mich
York-Shipley Inc York Pa

BURNERS—sawdust

Allington & Curtis Mfg Co Saginaw Mich
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Western Fdry Co Portland 1 Ore

BURNERS—weeds

Aeroil Products Co West New York N J
Diamond Iron Works Minneapolis 11 Minn
The Macleod Co Cincinnati 22 Ohio

CABINETS—bathroom, metal

Acme Metal Products Corp Box 237 Blue Island Ill
Conant Bros Co Boston 14 Mass
Copco Steel & Engineering Co Detroit 27 Mich
Excel Metal Cabinet Co Jamestown N Y
Faries Mfg Co Decatur 70 Ill
Gold Seal Mfg Co 1228 W Kinzie Chgo 22 Ill
Harrison Steel Cabinet Co 4718 W 5th Chgo Ill
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
F H Lawson Co Cincinnati 4 Ohio
Miami Cabinet Div Philip Carey Co Middletown O
Chas Parker Co Meriden Conn
Porcelain Metals Corp Inc Louisville 10 Ky
Royal Glass Works Corp 50-20 25th Long Island City 1 N Y
Toledo Plate & Window Glass Co Toledo 2 Ohio
Universal Fabricators 1801 Boone Av Bronx 60 N Y

CABINETS—bathroom, wood

Angel Novelty Co Fitchburg Mass
Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Conant Bros Co Boston 14 Mass
Curtis Companies Inc Clinton Ia
Dyke Bros Little Rock Ark (141)
Farley & Loetscher Mfg Co Dubuque Ia
General Wood Works Council Bluffs Ia
Huttig Mfg Co Muscatine Ia
Ideal Co Box 989 Waco Tex
Kane Mfg Corp Kane Pa
Marquart Millwork Co Oshkosh Wis (139)
Miami Cabinet Div Philip Carey Co Middletown O
Morgan Company Oshkosh Wis
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Wks Rock Island Ill

Number in parenthesis indicates page on which advertisement appears

CABINETS—display

Ames Metal Moulding Co Inc 228 E 144th St New York 51 N Y
Colonial Sales Corp 925 Broadway NY NY
Deluxe Metal Furniture Co Warren Pa
Dyke Bros Little Rock Ark (141)
Equipto Div of Aurora Equipment Co Aurora Ill
General Wood Works Council Bluffs Ia
W C Heller & Co 539 N Clark St Montpelier Ohio
Republic Steel Corp Berger Mfg Div Canton 5 Ohio

CABINETS—fire equipment

W D Allen Mfg Co 566 W Lake Chgo 6 Ill
Elkhart Brass Mfg Co Inc Elkhart Ind
Excel Metal Cabinet Co Jamestown N Y
Safety Fire Extinguisher Co 293 7th NY NY
Wirt & Knox Mfg Co Phil Pa

CABINETS—general household

Curtis Cos Inc Clinton Ia
Excel Metal Cabinet Co Inc Jamestown N Y
Gabriel Steel Co Detroit Mich
General Wood Works Council Bluffs Ia
Gold Seal Mfg Co 1228 W Kinzie Chgo 22 Ill
Gregg & Son Nashua N H (125)
Hotpoint Inc 5600 W Taylor St Chicago 44 Ill
Ideal Co Box 889 Waco Tex
Morgan Co Oshkosh Wis
Mullins Mfg Corp Warren O
The Radford Co Oshkosh Wis
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Wks Rock Island Ill
G I Sellers & Sons Co Elwood Ind
Tennessee Valley Associates Inc Nashville 3 Tenn

CABINETS—kitchen, metal

Acme Metal Products Corp Box 237 Blue Island Ill
American Central Mfg Corp Connersville Ind
Elgin Stove & Oven Div of Acme Visible Records Inc Elgin Ill
Excel Metal Cabinet Co Jamestown N Y
Gold Seal Mfg Co 1228 W Kinzie Chgo 22 Ill
Harrison Steel Cabinet Co 4718 W 5th Chgo Ill
Hotpoint Inc 5600 W Taylor St Chicago 44 Ill
Lyon Metal Products Inc Aurora Ill
Midwest Mfg Co Galesburg Ill
Mullins Mfg Corp Warren O
St Charles Mfg Co St Charles Ill
Tennessee Valley Associates Inc Nashville 3 Tenn
Universal Fabricators 1801 Boone Av Bronx 60 N Y

CABINETS—kitchen, wood

Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Curtis Companies Inc Clinton Ia
Dyke Bros Little Rock Ark (141)
Farley & Loetscher Mfg Co Dubuque Ia
Gregg & Son Nashua N H 125)
Huttig Sash & Door Co St Louis Mo
Ideal Co Box 889 Waco Tex
Kane Mfg Corp Kane Pa
Kitchen Maid Corp Andrews Ind
Marquart Millwork Co Oshkosh Wis (139)
The Mengel Co Inc Louisville Ky (23-129)
Morgan Co Oshkosh Wis
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Mutschler Bros Co Nappanee Ind
Ponderosa Pine Woodwork 111 W Washington St Chicago 2 Ill
The Radford Co Oshkosh Wis
Roach & Musser Co Muscatine Ia
Segelke & Kohlhaus Co La Crosse Wis
G I Sellers & Sons Co Elwood Ind
Frank C Snedaker & Co Inc Philadelphia 40 Pa
Tennessee Valley Associates Inc Nashville 3 Tenn

CABLE—insulated

American Steel & Wire Co Cleveland O (309)
Chase Brass & Copper Co Waterbury 91 Conn
General Electric Co Schenectady N Y
Hazard Insulated Wire Works Div of The Okonite Co Wilkes-Barre Pa
John A Roebling's Sons Co Trenton 2 N J
Simplex Wire & Cable Co 79 Sidney Cambridge 39 Mass

CALCIMINE

Alabastine Paint Products Grand Rapids 9 Mich
Carbola Chemical Co Inc Natural Bridge N Y
Devoe & Raynolds Co Inc 787 1st Av NY NY
Ewing M Fox Co 240 E 136 NY NY
John Lucas & Co Phil Pa
Benjamin Moore & Co 511 Canal NY NY
Muralo Co Inc 566 Richmond Terrace Staten Isl N Y
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
The Renrdon Company St Louis 6 Mo (185)
Reliable Paste Co 3560 Shields Chgo Ill
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
U S Kalsomine Co 50 Church NY NY
Wadsworth Howland & Co 141 Federal Boston Mass
Wesco Waterpaints Inc Berkeley Cal

CALCIUM CHLORIDE

American Cyanamid & Chem 30 Rockefeller Plaza NY NY
Geo W Diener Mfg Co 406 N Monticello Av Chgo 24 Ill
The Dow Chemical Co Midland Mich
E I DuPont de Nemours & Co Inc Wilmington 98 Del
Geo C Gordon Chemical Co Kansas City 7 Mo
Pennsylvania Salt Mfg Co Philadelphia 7 Pa
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Sealcon Products Inc Minneapolis 2 Minn
Solvay Sales Corp 40 Rector NY NY
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Wyandotte Chemicals Corp Wyandotte Mich

CALENDARS

Brown Blodgett Co St Paul Minn
Economy Novelty & Printing Co 225 W 39th NY NY
L F Grammes & Sons Inc Allentown Pa
The Kemper Thomas Co Cincinnati 12 Ohio
The Thos D Murphy Co Red Oak Iowa
National Plan Service Inc 1315 Congress Chgo Ill
Parisian Novelty Co 3510 S Western Av Chicago 9 Ill
Shedd Brown Mfg Co Minneapolis Minn

CANVAS

Bemis Bro Bag Co St Louis 2 Mo
Canvas Products Co St Louis 4 Mo
Fulton Bag & Cotton Mills Co Atlanta Ga
J W Johnson Co 1237 N Honore Chgo Ill
Standard Awning Co Hartford Conn
William W Stanley Co Inc 401 Broadway New York 13 N Y
Tucker Duck & Rubber Co Fort Smith Ark
Wellington Sears Co 65 Worth NY NY
Werner Canvas Products Co 607 Bergen Brooklyn 17 N Y

CANVAS—washable, wall

Columbus Coated Fabrics Corp 7th & Grant Avs Columbus 16 Ohio

CAPS—advertising

Bemis Bro Bag Co St Louis 2 Mo
Economy Novelty & Printing Co 225 W 39 NY NY
Kemper Thomas Co Cincinnati O
Minnesota Specialty Co Second Av N & 4th Minneapolis Minn
New York Adv Cap Co Inc 396 Broadway NY NY
Troy Sunshade Co Troy Ohio

CAR DOOR OPENER

Mining Safety Device Co Bowerston O

CAR MOVERS

American Mfg Co Inc Tacoma 2 Wash (404)
Frank R Buck & Co 2133 W Touhy Av Chgo 45 Ill (409)
Diamond Iron Works Inc Minneapolis 11 Minn
Hyster Co Portland 8 Ore and Peoria 1 Ill
Jeffrey Mfg Co Columbus 16 Ohio
Joy Mfg Co Sullivan Div Michigan City Ind
Silent Hoist & Crane Co 860 63rd St Brooklyn 20 N Y (402)
Stephens-Adamson Mfg Co Aurora Ill

CAR DOOR LUMBER ROLLERS

American Logging Tool Co Evart Mich (501)
Frank R Buck & Co 2133 W Touhy Av Chgo 45 Ill (409)

CAR PULLERS

American Eng Co Philadelphia 25 Pa
American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
Clyde Iron Wks Inc Duluth Minn
Harnischfeger Corp Milwaukee Wis
Hyster Co Portland 8 Ore & Peoria 1 Ill
Jeffrey Mfg Co Columbus O
Lidgerwood Mfg Co Elizabeth N J
Link-Belt Co 300 W Pershing Rd Chgo 9 Ill
Silent Hoist & Crane Co 860 63rd Brooklyn N Y (402)
Stimmel Winch Co 37-24 33rd Long Island City N Y

CARRIAGES—sawmill

Allis Chalmers Mfg Co Milwaukee Wis (398)
Corinth Machinery Co Corinth Miss (388)
Corley Mfg Co Chattanooga 1 Tenn
Enterprise Co Columbiana O (408)
The Filer & Stowell Co Milwaukee 7 Wis
Lane Mfg Co Montpelier Vt (404)
Prescott Co Menominee Mich
The Wheland Co Chattanooga 2 Tenn
Yates American Mach Co Beloit Wis

CARS—lumber transfer

Allis Chalmers Mfg Co Milwaukee Wis (398)
American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
Corinth Machinery Co Corinth Miss (388)
Leitelt Iron Works Grand Rapids 2 Mich (power) (408)
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)

CARTS—fire hose

W D Allen Mfg Co 566 W Lake Chgo 6 Ill
American-La France-Foamite Corp Elmira N Y
Safety Fire Extinguisher Co 293 7th NY NY
Wirt & Knox Mfg Co Phil Pa

CATCHES

American Cabinet Hdw Corp Rockford Ill (285)
Casement Hdw Co 406 N Wood Chgo Ill
Frantz Mfg Co Sterling Ill (298)
L F Grammes & Sons Inc Allentown Pa
Nat'l Brass Co Grand Rapids Mich
Nat'l Lock Co Rockford Ill (293)
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn Hardware Co Reading Pa
Jersey City 2 N J (182)
Russell & Erwin Div The American Hdw Corp New Britain Conn
Safe Padlock & Hdw Co Lancaster Pa
Slaymaker Lock Co Lancaster Pa
The Stanley Wks New Britain Conn (272)
Yale & Towne Mfg Co Stamford Conn (269)

CAULKING COMPOUND

American Asphalt Roof Corp Kansas City 3 Mo
American Marietta Co 43 E Ohio Chgo 11 Ill
Anti Hydro Waterproofing Co Newark 8 N J
Armstrong Co 4665 S La Salle Chgo 9 Ill (161)

Number in parenthesis indicates page on which advertisement appears

The Biddle Co St Louis 2 Mo (164)
Calbar Paint & Varnish Co 2612 N Martha Phil 25 Pa
Philip Carey Co Cincinnati 15 O (235)
Ceresit Waterproofng Corp 512 S Canal Chgo Ill
Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
Christy Co Inc St Louis 10 Mo
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Felton Sibley & Co Inc 136 N 4th Philadelphia 6 Pa
Fort Pitt Chem Co Pittsburgh 22 Pa
Gumputtie Laboratories 2221 S Archer Av Chicago 16 Ill
Harrop Chemical Co 135 Hoboken Av Jersey City 2 N J
A C Horn Co 43-42 Tenth St Long Island City 1 N Y
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Landen Putty Works Malden 48 Mass (139-164)
Lastik Prod Co Inc Pittsburgh Pa
Macklanburg - Duncan Co Oklahoma City 1 Okla (297)
Mar-Kay Mfg Co 2715 S Second St St Louis Mo
Minwax Co Inc 11 W 42nd St New York 18 N Y
Mixtite Corp North Haven Conn
Ira Parker & Sons Co Oshkosh Wis (76)
Pecora Paint Co American & Venango Philadelphia 40 Pa
Phelan-Faust Paint Mfg Co St Louis 11 Mo
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Plastic Prod Co 6475 Georgia Av Detroit 11 Mich
Presstite Engineering Co St Louis 10 Mo
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
Sealcon Prod Inc 927 Second Av S Minneapolis 2 Minn
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Tremco Mfg Co Cleveland O
W F Webster Cement Co Cambridge 41 Mass
X Pando Corp 43-15 36th Long Island City N Y

CEMENT—asbestos

Acme Asbestos Covering & Flooring Co 244 N Elizabeth St Chicago 7 Ill
Philip Carey Mfg Co Lockland Cincinnati 15 Ohio (235)
Curtis Asbestos Co Boston 10 Mass
Ehret Magnesia Mfg Co Inc Valley Forge Pa
The Flintkote Co 30 Rockefeller Plaza NY NY
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Pecora Paint Co American & Venango Philadelphia 40 Pa
Plant Rubber & Asbestos Works San Francisco 7 Calif
Plibrico Jointless Firebrick Co 1800 N Kingsbury Chicago 14 Ill
Rutland Fire Clay Co Rutland Vt
Standard Asbestos Mfg Co 822 W Lake Chgo Ill

CEMENT—belt

Bay State Belting Co 234 Summer St Boston 10 Mass
The B F Goodrich Co Akron Ohio
Graton & Knight Worcester Mass
Page Belting Co Concord New Hampshire
J E Rhoads & Son Philadelphia 6 Pa
Chas A Schieren Co 30 Ferry New York 7 N Y
The Sullivan Co Memphis 2 Tenn
Webb Belting Co Kansas City 7 Mo

CEMENT—iron

Ceresit Waterproofing Corp 512 S Canal St Chicago 7 Ill
Clark Cast Steel Cement Co 2612 W 17th Wilmington 73 Del
Ranetite Mfg Co Inc 1917 S Broadway St. Louis Mo (353)
Smooth-On Mfg Co 568-574 Communipaw Av Jersey City 4 N J
So-Lo Wks Inc Loveland O
Tamms Silica Co 228 N LaSalle Chgo 1 Ill
Tilette Cement Co Inc 401 Lafayette St New York 3 N Y

CEMENT—mortar

Alpha Portland Cement Co Easton Pa
Dewey Portland Cement Co 310 Ward Pkwy Kansas City 2 Mo
Hawkeye Portland Cement Co of Iowa 802 Hubbell Bldg Des Moines Iowa
Huron Portland Cement Co Detroit 26 Mich
Lehigh Portland Cement Co Allentown Pa
Louisville Cement Co Inc 315 Guthrie Louisville 2 Ky
Medusa Portland Cement Co Cleveland O
Ohio Hydrate & Supply Co Woodville O
Riverton Lime & Stone Co Inc Riverton Va
Trinity Portland Cement Co Dallas Tex (353)
Universal Atlas Cement Co 135 E 42nd NY 17 NY
X-Pando Corp 43-15 36th Long Island City 1 N Y

CEMENT—plastic

American Asphalt Roof Corp Kansas City Mo
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Bird & Son Inc East Walpole Mass
Blue Ridge Talc Co Inc Henry Va
Certain-teed Products Corp 120 S La Salle Chgo 3 Ill (215)
Clinton Metallic Paint Co Clinton N Y (furnace)
The Dow Chemical Co Midland Mich
Durite Plastics Inc 5000 Summerdale Av Philadelphia 24 Pa
Ehret Magnesia Mfg Co Inc Valley Forge Pa
A C Horn Co 43-42 Tenth Long Island City 1 NY
Mixtite Corp North Haven Conn
Monsanto Chemical Co St Louis 4 Mo
National Adhesives 268 Madison Av New York 16 N Y
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Prestile Mfg Co 2860 Lincoln Av Chgo 13 Ill (200)
The Ruberoid Co 500 Fifth Av New York 18 N Y (196)
Tilette Cement Co Inc 401 Lafayette St New York 3 N Y
Webb Products Co San Bernardino Calif & Norcross Ga (172)
W F Webster Cement Co Cambridge 41 Mass

CEMENT—Portland

Alpha Portland Cement Co Easton Pa
Ashgrove Lime & Portland Cement Co Kansas City Mo
Bessemer Limestone & Cement Co Youngstown 3 O
Calif Portland Cement Co Los Angeles Cal
Carney Co Mankato Minn
Colorado Portland Cement Co Denver Natl Bldg Denver 2 Colo
Consolidated Cement Corp 111 W Monroe St Chgo Ill
Dewey Portland Cement Co 310 Ward Pkwy Kansas City 2 Mo
Florida Portland Cement Co Tampa Fla
Hawkeye Portland Cement Co of Iowa 802 Hubbell Bldg Des Moines Iowa
Hercules Cement Corp 1420 Walnut St Philadelphia 2 Pa
Huron Portland Cement Co 1325 Ford Bldg Detroit 26 Mich
Kosmos Portland Cement Co Louisville Ky
Lehigh Portland Cement Co Allentown Pa
Lone Star Cement Corp 342 Madison Av NY NY
Louisville Cement Co Inc 315 Guthrie Louisville 2 Ky
Marquette Cement Mfg Co 140 S Dearborn Chgo 3 Ill
Pacific Portland Cement Co San Francisco 6 Cal
Southern Cement Co Birmingham 3 Ala
Trinity Portland Cement Co Dallas Tex (353)
Universal Atlas Cement Co 135 E 42nd NY 17 NY

CEMENT—refractory

Acme Asbestos Covering & Flooring Co 244 N Elizabeth St Chicago 7 Ill
Acme Brick Co Ft Worth Texas
Chicago Fire Brick Co 1467 Elston Av Chgo 22 Ill
Christy Co Inc St Louis 10 Mo
Denver Fire Clay Co Denver Colo
Dewey Portland Cement Co 310 Ward Pkwy Kansas City 2 Mo
Ehret Magnesia Mfg Co Inc Valley Forge Pa
Gen'l Refractories Co Phil Pa
A P Green Fire Brick Co Mexico Mo
Harbison Walker Refractories Co Farmers Bank Bldg Pittsburgh Pa
Johns-Manville Corp 22 E 40th N Y 16 NY (224)
Keystone Refractories Co 120 Liberty St NY 6 NY
Laclede-Christy Clay Prod Co St Louis Mo
Mexico Refractories Co Mexico Mo
North American Refractories Co Cleveland 14 O
Plibrico Jointless Firebrick Co 1800 N Kingsbury Chgo 14 Ill
Quigley Co Inc 527 Fifth Av New York
Robinson Clay Prod Co Akron O
Rutland Fire Clay Co Rutland Vt
Sauereisen Cement Co Pittsburgh Pa
Seaboard Refractories Co Perth Amboy N J
Sealcon Products Inc Minneapolis 2 Minn
Universal Atlas Cement Co 135 E 42nd New York 17 N Y
Walsh Refractories Corp St Louis 7 Mo
Washington Brick & Lime Co Spokane 8 Wash

CEMENT—roofing

Acme Asbestos Covering & Flooring Co 244 N Elizabeth St Chicago 7 Ill
American Asphalt Roof Corp Kansas City Mo
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Philip Carey Mfg Co Cincinnati 15 O (235)
The Celotex Corp 120 S LaSalle Chgo 3 Ill (226-227)
Certain-teed Products Corp 120 S La Salle St Chgo Ill (215)
Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
Clinton Metallic Paint Co Clinton N Y
Coal Tar Products Co Brooklyn N Y
Colorado Paint Co 3551 Blake Denver 5 Colo
The Dad & Lad Co New Lenox Ill
Flintkote Co 30 Rockefeller Plaza NY NY
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
A C Horn Co 43-42 Tenth Long Island City 1 NY
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Jones & Brown Inc Pittsburgh Pa
Keystone Asphalt Products Co 43 E Ohio St Chicago 11 Ill
Lastik Products Co Inc Pittsburgh Pa
Minnesota Linseed Oil Paint Co Minneapolis Minn
Mixtite Corp North Haven Conn
B F Nelson Mfg Co Minneapolis 13 Minn
Pecora Paint Co Philadelphia 40 Pa
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Reilly Tar & Chemical Corp Indianapolis 4 Ind
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
Rutland Fire Clay Co Rutland Vt
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Tremco Mfg Co Cleveland O
United Gilsonite Laboratories Scranton Pa
Webster Cement Co Cambridge Mass

CEMENT—rubber

Auburn Rubber Corp Auburn Ind
Broadway Rubber Mfg Co 529 E Broadway Louisville 2 Ky
Commercial Paste Co Columbus 8 Ohio
Crescent Prod Co Terre Haute Ind
Durkee-Atwood Co Minneapolis Minn
Goodloe E Moore Co Danville Ill
Hadley Bros-Uhl Company 3952 W Pine Blvd St Louis 8 Mo
Holdfast Rubber Co Atlanta Ga
R M Hollingshead Corp Camden N J
H B Fred Kuhls 6413 3rd Av Brklyn N Y
The Las-Stik Mfg Co B & Wayne sts Hamilton Ohio
Okonite Co Passaic N J
Paisley Products Inc 1770 Canalport Av Chicago 16 Ill
Rainbow Rubber Co Butler Pa
Ross Chem Prod Detroit Mich
St Louis Rubber Cement Co Inc St Louis Mo
Schacht Rubber Mfg Co Huntington Ind
W F Webster Cement Co Cambridge 41 Mass

Number in parenthesis indicates page on which advertisement appears.

CEMENT—tile

Boyle-Midway Inc Jersey City 2 N J (182)
Goodloe E Moore Co Danville Ill
National Casein Sales 601 W 80th Chgo 20 Ill
Ohio Hydrate & Supply Co Woodville O
Pecora Paint Co American & Venango Philadelphia 40 Pa
Prestile Mfg Co 2860 N Lincoln Av Chgo 13 Ill (200)
Sauereisen Cement Co Pittsburgh Pa
So-Lo Wks Inc Loveland O
Steelcote Mfg Co St Louis 3 Mo
Tylac Co Monticello Ill
W F Webster Cement Co Cambridge 41 Mass
X-Pando Corp 43-15 36th Long Island City N Y
Youngstown Mfg Inc Youngstown 6 O (102)

CEMENT—waterproofing

Adensite Co Inc 37-19 23rd St L I City NY
American Fluresit Co Inc Cincinnati 29 Ohio
Barclay Mfg Co 385 Gerard Av Bronx NY
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Philip Carey Mfg Co Cincinnati 15 O (235)
Ceresit Waterproofing Corp 512 S Canal Chgo Ill
Certain-teed Products Corp 120 S La Salle Chgo 3 Ill (215)
Colorado Portland Cement Co Denver Colo
Colorcrete Industries Inc Holland Mich
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
E I DuPont de Nemours & Co Wilminton Del
The Flintkote Co 30 Rockefeller Plaza New York 20 N Y
A C Horn Co 43-36 Tenth Long Island N Y
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Louisville Cement Co Inc 315 Guthrie Louisville 2 Ky
Marsh Wall Products Inc Dover Ohio (192)
Medusa Portland Cement Co Cleveland O
Mixtite Corp North Haven Conn
Goodloe E Moore Co Danville Ill
Pecora Paint Co Inc Philadelphia 40 Pa
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Presstite Engineering Co St Louis 10 Mo
Protection Products Mfg Co Kalamazoo Mich (68)
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
Robeson-Preservo Co Port Huron Mich
Sauereisen Cement Co Pittsburgh Pa
Sealcon Products Inc Minneapolis 2 Minn
Steelcote Mfg Co St Louis 3 Mo
Technical Supply Co Palo Alto Calif
Trinity Portland Cement Co Dallas Tex (353)
X-Pando Corp 43-15 36th Long Island City N Y

CHAIN—conveyor

The C O Bartlett & Snow Co 6200 Harvard Av Cleveland 5 Ohio
Chain Belt Co Milwaukee 4 Wis
The Cleveland Chain & Mfg Co Cleveland 5 Ohio
Columbus McKinnon Chain Corp Tonawanda N Y
Diamond Chain Co Inc 402 Kentucky Av Dept 450 Indianapolis 7 Ind
Gifford-Wood Co Hudson N Y
International Chain & Mfg Co York Pa
Jeffrey Mfg Co Columbus 16 Ohio
Link-Belt Co 300 W Pershing Chicago Ill
Newhall Chain Forge & Iron Co 48 W Broadway NY NY
Standard Conveyor Co North St Paul 9 Minn
Stephens-Adamson Mfg Co Aurora Ill
S G Taylor Chain Co Hammond Ind
U S-Challenge Co Batavia Ill

CHAIN—logging & loading

Amer Chain Div Amer Chain & Cable Co Inc York Pa
Bridgeport Chain & Mfg Co Bridgeport Conn
The Cleveland Chain & Mfg Co Cleveland 5 Ohio
Columbus McKinnon Chain Corp Tonawanda N Y
Clinton Hobbs Co Everett Mass
Internat'l Chain & Mfg Co York Pa
Jeffrey Mfg Co Columbus 16 Ohio
Newhall Chain Forge & Iron Co 48 W Bdwy NY NY
Peerless Chain Co Winona Minn
Prescott Co Menominee Mich
S G Taylor Chain Co Hammond Ind
Western Chain Co 1807 W Belmont Av Chicago 13 Ill
White Hill Chain Wks Fieldsboro N J

CHAIN—sash

American Chain & Cable Co Inc Bridgeport 2 Conn
Bridgeport Chain & Mfg Co Bridgeport Conn
Carroll Chain Co Columbus O
Chase Brass & Copper Co Waterbury 91 Conn
The Cleveland Chain & Mfg Co Cleve-5 Ohio
Esco Chain Wks 309 E 22nd NY NY
Hodell Chain Co Cleveland 3 Ohio
International Chain & Mfg Co York Pa
Peerless Chain Co Winona Minn
Phoenix Hdwe Mfg Co Buffalo N Y
Russell Mfg Co Naugatuck Conn
Turner & Seymour Mfg Co Torrington Conn

CHAIN—transom

Barrows Lock Works North Chicago Ill (301)
Champion Hdwe Co Geneva O
The Cleveland Chain & Mfg Co Cleveland 5 Ohio
P & F Corbin New Britain Conn
Norwalk Lock Co 395 Broadway NY 13 NY
Penn Hardware Co Reading Pa
Reading Hardware Corp Reading Pa
Russell & Erwin Div The American Hdw Corp New Britain Conn
The Safe Padlock & Hardware Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sargent & Co New Haven 9 Conn (295)
Sharon Hardware Mfg Co Sharon Pa
Turner & Seymour Mfg Co Torrington Conn
Yale & Towne Mfg Co Stamford Conn (269)

CHAIN DRIVES

Chain Belt Co Milwaukee 4 Wis
Diamond Chain Co Inc 402 Kentucky Av Dept 450 Indianapolis 7 Ind
The Filer & Stowell Co Milwaukee 7 Wis
Jeffrey Mfg Co Columbus 16 Ohio
Link-Belt Co 300 W Pershing Chgo Ill
Prescott Co Menominee Mich
Ramsey Chain Co Albany N Y
The Wheland Co Chattanooga 2 Tenn

CHALK LINES

Cleveland Mill & Power Co Lawnsdale N C
B F Gladding & Co South Otselic N Y
Lees Mfg Co 257 4th Av NY NY
Raucher Mfg Co Norwich Conn
Tennessee Line & Twine Co Elizabethton Tenn
Turner & Stanton Co Norwich Conn

CHAMOIS

Albert Bloch & Sons Inc 36 Walker St New York 13 N Y
American Sponge & Chamois Co 47 Ann St NY 7 NY
Atlantic Sponge & Chamois Corp 49 Walker NY NY
Florida Sponge & Chamois Co 42 Cliff NY NY
H L Ettman Sponge Co St Louis 3 Mo
Great Eastern Sponge & Chamois Co Baltimore Md
Greek-American Sponge Co 158 N Franklin St Chicago 6 Ill
Gulf & West Indies Co 141 Water NY 5 NY
A C Lawrence Leather Co Peabody Mass
Dan Malloy Co Philadelphia 6 Pa
Nassau Sponge Co 124 W Kinzie St Chgo 10 Ill
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (151)
Robinson Sponge Co 1805 Atlantic Ave Brooklyn 33 N Y
James H Rhodes & Co 157 W Hubbard St Chicago 10
Schroeder & Tremayne Inc 1711 Delmar Blvd St Louis 3 Mo

CHIMNEY TOPS

Adams Co Dubuque Ia
Dennison Sewer Pipe Corp Cleveland 15 Ohio
Dickey W S Clay Mfg Co Kan City Mo
Gedge Bros Steel Roofing Co Anderson Ind
Northwestern Terra Cotta Co 1750 W Wrightwood Chgo Ill
Robinson & Son Sewer Pipe Co Uhrichsville O
Sealcon Products Inc Minneapolis 2 Minn
Streator Drain Tile Co Streator Ill

CHISELS

Amer Swiss File & Tool Co Elizabeth N J
Baltimore Tool Wks Inc Baltimore Md
Billings & Spencer Co Hartford Conn
Bridgeport Hdwe Mfg Corp Bridgeport Conn
Cincinnati Tool Co Cincinnati O
Cleveland Steel Tool Co Cleveland O
Cornwell Quality Tools Co Mogadore O
Damascus Steel Prod Corp Rockford Ill
Delaware Tool Steel Corp Wilmington 99 Del
Fairmont Tool & Forging Co 10611 Quincy Av Cleveland Ohio
Greenlee Bros & Co Rockford Ill
Harrold H J Tool Co Columbiana O
Heller Brothers Co Newark 4 N J
Leetonia Tool Co Leetonia Ohio
Mayhew Steel Products Inc Shelburne Falls Mass (wood)
Mephisto Tool Co Inc Hudson N Y
Mueller Co Decatur Ill
Owatonna Tool Co Owatonna Minn
Oxford Tool Co Phil 22 Pa
P & C Hand Forged Tool Co Portland Ore
Peck Stow & Wilcox Co Southington Conn
Plomb Tool Co Los Angeles Cal
Rainey-Tools Grove City Pa
Red Devil Tools Irvington 11 N J (glass) (288)
Sandvik Saw & Tool Corp 47 Warren St New York 7 N Y
The Stanley Wks New Britain Conn (272)
Vaughan & Bushnell Mfg Co 135 S La Salle Chgo Ill
Vulcan Tool Mfg Co Quincy Mass
Warren Tool Corp Warren O
Wilde Drop Forge & Tool Co Inc Kansas City Mo
Woodings-Verona Tool Wks Verona Pa

CLAMPS—"C"

Adjustable Clamp Co 417 N Ashland Av Chgo 22 Ill
Armstrong Bros Tool Co 317 N Francisco Av Chgo
Batavia Clamp Co Inc Batavia N Y
Black Bros Co Inc Mendota Ill
Eberhard Mfg Co Div Eastern Malleable Iron Co Cleveland O
Grand Specialties Co 3101 W Grand Av Chgo Ill
Handy Mfg Co 2432 W Lawrence Chgo Ill
Sargent & Co New Haven 9 Conn (295)

CLAMPS—carpenter steel bar

Adjustable Clamp Co 417 N Ashland Av Chgo 22 Ill
Batavia Clamp Co Inc Batavia N Y
Billings & Spencer Co Hartford Conn
Black Bros Co Inc Mendota Ill
Cincinnati Tool Co Cincinnati O
Eberhard Mfg Co Div Eastern Malleable Iron Co Cleveland O
Grand Specialties Co 3101 W Grand Av Chgo Ill
Handy Mfg Co 2432 W Lawrence Chgo Ill
Hartford Clamp Co E Hartford Conn
Phoenix Hdwe Mfg Co Buffalo N Y
Syracuse Stamping Co Inc Syracuse N Y
Taylor Jas L Mfg Co Poughkeepsie N Y

CLAMPS—concrete form

Batavia Clamp Co Batavia N Y
M & M Wire Clamp Co 983-17th Av S E Minneapolis 14 Minn
Richmond Screw Anchor Co Inc 816 Liberty Av Brooklyn 8 N Y
Star Expansion Bolt Co 147 Cedar St New York 6 N Y
Universal Form Clamp Co Inc 1238 N Kostner Chgo Ill
Williams Form Engineering Corp Grand Rapids 7 Mich

Number in parenthesis indicates page on which advertisement appears

CLAMPS—filing

Batavia Clamp Co Inc Batavia N Y
Cincinnati Tool Co Cincinnati O
Crescent Mach Co Leetonia O
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa

CLAMPS—hand screw

Adjustable Clamp Co 417 N Ashland Av Chgo 22 Ill
Armstrong Bros Tool Co 317 N Francisco Av Chgo Ill
Batavia Clamp Co Inc Batavia NY
Black Bros Co Inc Mendota Ill
Eberhard Mfg Co Div Eastern Malleable Iron Co Cleveland O
Handy Mfg Co 2432 W Lawrence Chgo
Hartford Clamp Co E Hartford Conn
Phoenix Hdwe Mfg Co Buffalo N Y
Stearns E C & Co Syracuse N Y
Woodruff Walter W & Sons Co Mt Carmel Conn

CLAY PRODUCTS

Acme Brick Co Fort Worth 2 Tex
Adel Clay Products Co Des Moines Ia
Agate Sewer Pipe Co Louisville Ky
Brazil Hollow Brick & Tile Co Brazil Ind
Dennison Sewer Pipe Corp Cleveland 15 O
Denver Fire Clay Co Denver 17 Colo
W S Dickey Clay Mfg Co Kansas City Mo
Evans Pipe Co Uhrichsville O
Lehigh Sewer Pipe & Tile Co Fort Dodge Iowa
Pacific Clay Products 306 West Av Los Angeles Cal
The Robinson Clay Products Co Akron 8 Ohio
Streator Drain Tile Co Streator Ill
Washington Brick & Lime Co Spokane 8 Wash
What Cheer Clay Products Co What Cheer Iowa

CLAY—fire

Cannelton Sewer Pipe Co Inc Cannelton Ind
Chicago Fire Brick Co 1461 N Elston Chgo
Columbia Pipe Co Columbia S C
Denver Fire Clay Co Denver Colo
Denver Sewer Pipe & Clay Co Denver Colo
Evans Pipe Co Uhrichsville O
General Refractories Co Phil Pa
Gladding-McBean & Co San Francisco Cal
Harbison Walker Refractories Co Farmers Bank Bldg Pittsburgh Pa
Laclede-Christy Clay Prods Co St Louis Mo
Lehigh Sewer Pipe & Tile Co Fort Dodge Ia
Mexico Refractories Co Mexico Mo
North American Refractories Co Cleveland 14 O
The Robinson Clay Products Co Akron 8 Ohio
Seaboard Refractories Co Perth Amboy N J
Sealcon Products Inc Minneapolis 2 Minn
Streator Drain Tile Co Streator Ill
Walsh Refractories Corp St Louis 7 Mo
Washington Brick & Lime Co Spokane 8 Wash
What Cheer Clay Products Co What Cheer Iowa

CLEANER—floor

Armstrong Cork Co Lancaster Pa
Boston Varnish Co Boston 49 Mass (178)
E L Bruce Co Memphis Tenn (207)
Cellowax Co 2114 N Charles St Baltimore Md
Christy Co Inc St Louis 10 Mo (for cement floors)
E I DuPont de Nemours & Co Inc Wilmington Del
Franklin Research Co Philadelphia 31 Pa
R M Hollingshead Corp Camden N J
A C Horn Co 43-42 Tenth Long Island City 1 NY
Industrial Chemical Laboratories Ltd Omaha 2 Neb
J A Meinhardt & Co 2622 S Shields Av Chgo Ill
Oakite Products Inc 22 Thames New York 6 N Y
Penetone Co Tenafly N J
Pennsylvania Salt Mfg Co Philadelphia 7 Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Puritan Chemical Co Atlanta 3 Ga
The Savogran Co Boston 10 Mass (170)
Solventol Chem Prods Inc Detroit 3 Mich
L. Sonneborn Sons Inc Bldg Products Div 88 Lexington Av New York 16 N Y (182)
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
United Gilsonite Labs Scranton Pa

CLEANER—paint brush

Boston Varnish Co Boston 49 Mass (178)
Boyer Chem Lab Co 2706 S Wabash Av Chgo Ill
Boyle-Midway Inc 257 Cornelison Av Jersey City 2 N J (182)
Briggs Maroney Co Inc Everett 49 Mass
Samuel Cabot Inc 141 Milk St Boston 9 Mass
Cleveland Cleaner & Paste Co Cleveland 2 Ohio
E Z Paintr Corp Fond du Lac Wis
Glidden Co Cleveland Ohio
Industrial Chemical Development Corp 347 Madison Av New York 17 N Y
W W Lawrence & Co 1124 W Carson Pittsburgh 19 Pa
J A Meinhardt & Co 2622 S Shields Av Chgo Ill
Patent Cereals Co Geneva NY
Penetone Co Tenafly N J
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Red Devil Tools Irvington 11 N J (electric) (288)
The Savogran Co Boston 10 Mass (170)
Schalk Chemical Co Los Angeles 12 Cal
Sterling Paint & Varnish Co Malden 48 Mass
Tamms-Silica Co 228 N La Salle Chgo 1
Vita-Var Corp Newark 2 N J (508)
Wooster Brush Co Wooster O

CLEANER—wall paper

Absorene Mfg Co St Louis Mo
Cleveland Cleaner & Paste Co Cleveland 2 O
Climax Industries Inc Cleveland O
Commercial Paste Co Columbus 8 O
Crescent Prods Co Terre Haute Ind
J A Meinhardt & Co 2622 S Shields Av Chgo Ill
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Sponge Rubber Prods Co Derby Conn

CLEANER—window

B T Babbitt Inc 386 4th Av New York 16 N Y
Boyle-Midway Inc 257 Cornelison Av Jersey City 2 N J (182)
J I Holcomb Mfg Co Indianapolis 7 Ind
R M Hollingshead Corp Camden N J
Howard Dustless Duster Co Boston 10 Mass
J A Meinhardt & Co 2622 S Shields Av Chgo Ill
Oakite Products Inc 22 Thames New York 6 N Y
O-Cedar Corp 2246 W 49th Chgo 9 Ill
Penetone Co Tenafly N J
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Puritan Chemical Co Atlanta 3 Ga
Socony-Vacuum Oil Co Inc 26 Bdwy NY NY
Solvay Sales Corp 40 Rector New York 6 N Y

CLIPS—concrete

Kelly Steel Works Inc 5767 W 65th Chgo 38 Ill
Union Steel Prod Co Albion Mich
Williams Form Engineering Corp Grand Rapids 7 Mich

CLIPS—floor

Bethlehem Steel Co Bethlehem Pa
Jeschke Wire & Spec Co Crawfordsville Ind
Kelly Steel Works Inc 5767 W 65th Chgo 38 Ill
Knapp Bros Mfg Co Joliet Ill
Merwin Mfg Co Erie Pa
Williams Wallace Co San Francisco Cal

CLIPS—glazing for steel sash

Adams Co Dubuque Ia
Eastern Tool & Mfg Co Bloomfield N J
L F Grammes & Sons Inc 396 Union Allentown Pa
M D Hubbard Spring Co Pontiac Mich
Jeschke Wire & Spec Co Crawfordsville Ind
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Parker Wire Goods Co Worcester Mass
Truscon Steel Co Youngstown O
L A Young Spring & Wire Corp Detroit Mich

CLOTH—hardware

American Wire Fabrics Corp 500 Fifth Av NY NY
Clinton Wire Cloth Co Clinton Iowa
Colorado Fuel & Iron Corp Denver 1 Colo
Cyclone Fence Div American Steel & Wire Co P O Box 260 Waukegan 1 Ill
Gilbert & Bennett Mfg Co Georgetown Conn
Seneca Wire & Mfg Co Fostoria O (302)
F P Smith Wire & Iron Works Inc 2346 N Clybourn Av Chicago 14 Ill
Wickwire Bros Inc Cortland N Y (303)

CLOTHES DRYERS

Blackstone Corp Jamestown N Y
Chicago Dryer Co 2210 N Pulaski Road Chicago 39 Ill
Gem Mfg Co North Girard Pa
Rotary Clothes Dryer Co Inc Allentown Pa
Southern Galvanizing Co Baltimore 30 Md (steel, fabricated) (298)
Watertown Table-Slide Corp Watertown Wis (folding, wall)
Woodenware Products Corp St Louis 1 Mo

CLOTHESLINE—braided fabric

American Phenolic Corp 1830 S 54th Av Cicero 50 Ill (plastic coated)
John H Graham & Co Inc 105 Duane New York 8 N Y
Plymouth Cordage Co No Plymouth Mass
Puritan Cordage Mills Mallison Braided Cord Div Athens Ga (275)
Puritan Cordage Mills Louisville 6 Ky (275)
Samson Cordage Works 89 Broad Boston Mass (300)
Silver Lake Co Chattahoochee Ga (not fabric) (301)
Southern Mills Corp Oxford Ala

CLOTHESLINE—wire

American Steel & Wire Co Cleveland 13 Ohio (309)
American Wire Fabrics Corp 500 Fifth Av NY NY
Colorado Fuel & Iron Corp Denver 1 Colo
Continental Steel Corp Kokomo Ind (313)
Copperweld Steel Co Glassport Pa
Indiana Steel & Wire Co Muncie Ind
Nichols Wire & Steel Co Davenport Iowa (aluminum) (219)
Pittsburgh Steel Co Pittsburgh 30 Pa
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y

CLOTHESLINE TIGHTENERS

Associated Projects Co Columbus 15 O

COAL

Black Star Coal Corp Louisville Ky
Blue Diamond Coal Co Knoxville Tenn
Central Coal & Coke Co Kansas City Mo
Cleveland-Cliffs Iron Co Cleveland 14 Ohio
Clinchfield Coal Corp Dante Va
Consolidated Coal & Coke Co Denver Colo
Defiance Coal Co Albuquerque N Mex
Delaware Lackawanna & Western Coal Co 120 Broadway NY NY
Independent Coal & Coke Co Salt Lake City Utah
Intermountain Coal & Lumber Co Elkins W Va
Montana Coal & Iron Co Billings Mont
Pardee & Curtin Lumber Co Clarksburg W Va
Red Jacket Coal Sales Co Columbus 15 O
Stearns Coal & Lumber Co Stearns Ky (32)

Number in parenthesis indicates page on which advertisement appears

COAL CHUTES

Adams Co Dubuque Ia
Chattanooga Implement & Mfg Co Chattanooga 6 Tenn
Copco Steel & Engineering Co 14035 Grand River Av Detroit 27 Mich
The Doniey Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Gabriel Steel Co Detroit 12 Mich
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Jeffrey Mfg Co Columbus 16 Ohio
Kewanee Mfg Co Kewanee Ill
Majestic Co Huntington Ind (105)
Peerless Mfg Corp Louisville 10 Ky
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (151)
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
Stewart Iron Wks Co Inc Cincinnati O
Wheeling Corrugating Co Wheeling W Va (357)

COAL HEATERS—
See HEATERS—coal

COLLECTION SERVICE

Lumbermens Credit Assn Inc 608 S Dearborn St Chicago 5 Ill (385)

COLORS—masonry, concrete, mortar, plaster, cement

Blue Ridge Talc Co Inc Henry Va
Ceresit Waterproofing Corp 512 S Canal Chgo Ill
Clinton Metallic Paint Co Clinton NY
Colorcrete Industries Inc Holland Mich
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Ewing M Fox Co 240 E 136th St N Y N Y
Geo C Gordon Chemical Co Kansas City Mo
Mineral Pigments Corp Muirkirk Md
Ricketson Mineral Color Wks Milwaukee Wis
Sealcon Prod Inc 927 Second Av S Minneapolis 2 Minn
J Lee Smith & Co Inc 25 Ann St New York N Y
Smith Chem & Color Co 55 John Brooklyn N Y
Geo B Smith Chemical Works Maple Park Ill
L Sonneborn Sons Inc 88 Lexington Ave New York 16 N Y (182)
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Washington Brick & Lime Co Spokane 8 Wash
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass
Williams & Co Easton Pa

COLUMNS—built-up wood

Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Curtis Companies Inc Clinton Ia
Huttig Sash & Door Co St Louis Mo
Mutual Fir Column Co Tacoma Wash
Pacific Mutual Door Co Tacoma Wash
Timber Structures Inc Portland 8 Ore
Washington Mfg Co Tacoma 1 Wash

CONCRETE BLOCK MACHINES

Besser Mfg Co Alpena Mich
Colorcrete Industries Inc Holland Mich
Dunn W E Mfg Co Holland Mich
Equipment Engineering Co St Charles Ill
Kent Mach Co Cuyahoga Falls O (407)
Multiplex Concrete Mach Co Elmore O
R S Reed Corp Three Rivers Mich
Stearns Mfg Co Adrian Mich

CONCRETE CURING COMPOUND

Adensite Co Inc 37-19 23rd Long Island City N Y
Anti Hydro Waterproofing Co Newark 8 N J
Ceresit Waterproofing Corp 512 S Canal Chicago 7 Ill
The Dow Chemical Co Midland Mich
Fort Pitt Chem Co Pittsburgh 22 Pa
Horn A C Co 43-42 10th Long Island City N Y
Inter-State Oil Co Kansas City 8 Kan
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Keystone Asphalt Products Co 43 E Ohio St Chicago 11 Ill
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
Reilly Tar & Chemical Corp Indianapolis 4 Ind
The Richkraft Co Builders Bldg Chicago 1 Ill (250-251)
Sealcon Prod Inc 927 Second Av S Minneapolis 2 Minn
Solvay Sales Corp 40 Rector NY NY
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Wall Products Inc Newark 2 N J

CONCRETE CURING PAPER

Keystone Asphalt Products Co 43 E Ohio St Chicago 11 Ill
Richkraft Co Builders Bldg Chicago 1 Ill (250-251)
Sisalkraft Co 205 W Wacker Drive Chicago 6 Ill (237)

CONCRETE FLOOR RESURFACER

Ceresit Waterproofing Corp 512 S Canal St Chicago 7 Ill
Smooth-On Mfg Co Jersey City 4 N J
L Sonneborn Sons Inc 88 Lexington Av New York 16 N Y (182)
Steelcote Mfg Co St Louis 3 Mo
The Sullivan Co Memphis 2 Tenn
Vita-Var Corp Newark 2 N J (508)

CONCRETE FORMS

Universal Form Clamp Co 1238 N Kostner Av Chicago 51 Ill

CONCRETE HARDENER

Adensite Co Inc 37-19 23rd St L I City NY
American Fluresit Co Cincinnati 29 O
Anti Hydro Waterproofing Co Newark 8 N J
Belmont Smelting & Refining Works Inc 330 Belmont Ave Brooklyn 7 N Y
Celadri Corp Williston Park L I NY (347)
Ceresit Waterproofing Corp 512 S Canal Chgo
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Fort Pitt Chem Co Pittsburgh 22 Pa
Harrop Chemical Co 135 Hoboken Av Jersey City 2 N J
Horn A C Co 43-42 Tenth St Long Island City N Y
Goodloe E Moore Co Danville Ill
Puritan Chemical Co Atlanta 3 Ga
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
Smooth-On Mfg Co 568-574 Communipaw Av Jersey City 4 N J
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Truscon Labs Detroit Mich
Vita-Var Corp Newark 2 N J (508)
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass

CONNECTORS—timber

Cleveland Steel Specialty Co Cleveland 5 Ohio
Timber Engineering Co 1319 Eighteenth St N W Washington 6 D C
Timber Engineering Co of Michigan Detroit Mich
Timber Structures Inc Portland 8 Ore

CONVEYORS—chain link & chain belt

Allis Chalmers Mfg Co Milwaukee Wis (398)
American Mfg Co Inc Tacoma 2 Wash (404)
The C O Bartlett & Snow Co 6200 Harvard Av Cleveland 5 Ohio
Chain Belt Co Milwaukee 4 Wis
Colorado Fuel & Iron Corp Denver 1 Colo
Corinth Machinery Co Corinth Miss (388)
The Filer & Stowell Co Milwaukee 7 Wis
Gifford-Wood Co Hudson N Y
Godfrey Conveyor Co Elkhart Ind
Jeffrey Mfg Co Columbus O
Lamson Co Inc Syracuse N Y
Link Belt Co 300 W Pershing Chgo Ill
Mathews Conveyer Co Ellwood City Pa
Newhall Chain Forge & Iron Co 48 W Broadway New York 7 N Y
Prescott Co Menominee Mich
Stephens Adamson Mfg Co Aurora Ill
The Wheland Co Chattanooga 2 Tenn

CONVEYORS—gravity roller

American Mfg Co Inc Tacoma 2 Wash (404)
Equipment Engineering Co St Charles Ill
Logan Co Inc Louisville Ky
Mathews Conveyor Co Ellwood City Pa
Rapids Standard Co Inc Grand Rapids 2 Mich (396)
Standard Conveyor Co N St Paul Minn

CONVEYORS—gravity wheel

Equipment Engineering Co St Charles Ill
Logan Co Inc Louisville 6 Ky
Mathews Conveyor Co Ellwood City Pa
Prescott Co Menominee Mich
Rapids Standard Co Inc Grand Rapids 2 Mich (396)
Standard Conveyor Co North St Paul 9 Minn

CONVEYORS—overhead

Allith-Prouty Inc Danville Ill
Cleveland Crane & Engineering Co Wickliffe O
Corinth Machinery Co Corinth Miss (388)
Corley Mfg Co Chattanooga 1 Tenn
Godfrey Conveyor Co Elkhart Ind
Lamson Co Syracuse N Y
Link-Belt Co 300 W Pershing Rd Chgo 9 Ill
Louden Mchy Co Fairfield Ia
Mathews Conveyor Co Ellwood City Pa
The Ney Mfg Co 948 High Av S W Canton 4 Ohio
Northern Conveyor Co Janesville Wis
Richards-Wilcox Mfg Co Aurora Ill

CONVEYORS—portable belt

Atlas Conveyor Co Clintonville Wis
Barber-Greene Co Aurora Ill
Equipment Engineering Co St Charles Ill
Fairfield Eng Co Marion O
Godfrey Conveyor Co Elkhart Ind
George Haiss Mfg Co Inc 391 Canal Place Bronx 51 NYC N Y
Jeffrey Mfg Co Columbus O
Lamson Co Syracuse N Y
Link Belt Co 300 W Pershing Chgo Ill
Northern Conveyor Co Janesville Wis
Rapids Standard Co Inc Grand Rapids 2 Mich (396)
Standard Conveyor Co North St Paul 9 Minn
Stephens Adamson Co Aurora Ill

CONVEYORS—portable bucket

Barber-Greene Co Aurora Ill
Fairfield Eng Co Marion O
George Haiss Mfg Co Inc 391 Canal Place Bronx 51 N Y C NY
Hyster Co Portland 8 Ore & Peoria 1 Ill
Jeffrey Mfg Co Columbus O
Link Belt Co 300 W Pershing Chgo Ill

CONVEYORS—portable flight

Atlas Conveyor Co Clintonville Wis
Barber-Greene Co Aurora Ill
Equipment Engineering Co St Charles Ill
Fairfield Eng Co Marion O
Godfrey Conveyor Co Elkhart Ind
Lamson Co Inc Syracuse N Y
Link Belt Co 300 W Pershing Chgo Ill
Northern Conveyor Co Janesville Wis
Stephens Adamson Co Aurora Ill

CONVEYORS—slab

American Saw Mill Machinery Co Hackettstown N J (saw dust)
The C O Bartlett & Snow Co 6200 Harvard Av Cleveland 5 Ohio

Bennett-Ireland Norwich N Y (264)
Chain Belt Co Milwaukee 4 Wis
Corinth Machinery Co Corinth Miss (388)
Cunningham Mchy Co Shreveport La (398)
The Filer & Stowell Co Milwaukee 7 Wis
Jeffrey Mfg Co Columbus O
Link Belt Co 300 W Pershing Chgo Ill
Standard Conveyor Co North St Paul 9 Minn
Stephens-Adamson Mfg Co Aurora Ill
The Wheland Co Chattanooga 2 Tenn

CORD—sash

Austin & Eddy Inc P O Box 1504 Boston 4 Mass
Geo B Carpenter & Co 440 N Wells Chgo Ill
John H Graham & Co Inc 105 Duane NY 8 NY
Highland Cordage Co Hickory N C
Hooper Wm E & Sons Co Phil Pa
Puritan Cordage Mills Louisville 6 Ky (275)
Puritan Cordage Mills Mallison Braided Cord Div Athens Ga (275)
Samson Cordage Works 89 Broad Boston 10 Mass (300)
Silver Lake Co Chattahoochee Ga (301)
Southern Mills Corp Oxford Ala
Whittier Mills Co Chattahoochee Ga

CORD—sash, wire

American Steel & Wire Co Cleveland O (309)
Austin & Eddy Inc P O Box 1504 Boston 4 Mass
John A Roebling's Sons Co Trenton N J
Upson-Walton Co Cleveland O
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y

CORD—venetian blind

Archer A W Co Inc 100 Worth NY NY
Bills Venetian Blind Co 862 E 63rd St Chicago 37 Ill
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Graham John H & Co Inc 105 Duan NY NY
Raucher Mfg Co Inc Norwich Conn
The Turner & Stanton Co Norwich Conn

CORN CRIBS

American Steel & Wire Co Cleveland 13 Ohio (309)
Capitol Fence Co 735 N Water Milwaukee Wis
E S Gaynor Lbr Co Sioux City Iowa
Illinois Wire & Mfg Co Joliet Ill (314)
Mattsen Wire & Mfg Co Inc Joliet Ill
Mid States Steel & Wire Co Crawfordsville Ind
Midwest Steel Products Co Kansas City Mo (steel)
Nebraska Bridge Supply & Lumber Co Omaha 5 Neb
Rowe Mfg Co Galesburg Ill
Siebring Mfg Co George Iowa
Wheeler-Arnold Co Wittenberg Wis
Wheeling Corrugating Co Wheeling W Va (357)

CORNER BEAD

Alabama Metal Lath Co Birmingham Ala
Bayonne Steel Products Co Newark N J
The Bostwick Steel Lath Co Niles Ohio (360-361)
Continental Steel Corp Kokomo Ind (313)
Extruded Plastics Inc Norwalk Conn
Goldsmith Metal Lath Co Cincinnati 32 O
Hercules Corner Bead Co Inc 245 Alabama Av Brooklyn N Y
Macklanburg - Duncan Co Oklahoma City 1 Okla (297)
Milcor Steel Co Milwaukee 4 Wis (319)
National Gypsum Co Buffalo 2 N Y (198-199)
Penn Metal Co Inc Parkersburg W Va (359)
St Paul Corrugating Co St Paul Minn
Truscon Steel Co Youngstown 1 O
U S Gypsum Co 300 W Adams Chgo 6 Ill
Wheeling Corrugating Co Wheeling W Va (357)
Williams-Wallace Co San Francisco 7 Calif

CORNERS—building

Bugher Mfg Co Kokomo Ind
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Kees F D Mfg Co Beatrice Neb
Klauer Mfg Co Dubuque Ia
La Crosse Steel Roofing & Corrugating Co La Crosse Wis
Merwin Mfg Co Erie Pa
Mid-States Steel & Wire Co Crawfordsville Ind
Milcor Steel Co Milwaukee 4 Wis (319)
Penn Supply & Metal Corp Phila 22 Pa
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
St Paul Corrugating Co St Paul Minn
Sharon Hardware Mfg Co Sharon Pa
Wheeling Corrugating Co Wheeling W Va (357)

COUNTER TOPS

Armstrong Cork Co Lancaster Pa
Bradley Lumber Co of Arkansas Warren Ark (211)
Congoleum-Nairn Inc Kearny N J
The Edwards Mfg Co Cincinnati 2 Ohio
General Wood Works Council Bluffs Ia
The B F Goodrich Co Akron Ohio (rubber)
Harrison Steel Cabinet Co 4718 W 5th Chgo Ill
Marsh Wall Prod Inc Dover O (192)
Morgan Co Oshkosh Wis
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Roddis Lumber & Veneer Co Marshfield Wis
United States Plywood Corp 55 W 44th New York 18 N Y (23-129)

COUNTERS—store & display

Bulman E O Mfg Co Inc Grand Rapids Mich
Deluxe Metal Furniture Co Warren Pa
Dyke Bros Little Rock Ark (141)
Equipto Div of Aurora Equipment Co Aurora Ill
General Fireproofing Co Youngstown O
General Wood Works Council Bluffs Ia
Grand Rapids Store Equipment Co Grand Rapids Mich
W C Heller & Co 539 N Clark St Montpelier Ohio
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
Universal Steel Equipment Corp 135 W 23rd NY NY

COUPLINGS—flexible shaft

Brad Foote Gear Wks Inc Cicero Ill
Chain Belt Co Milwaukee 4 Wis
Diamond Chain Co Inc 402 Kentucky Av Dept 450 Indianapolis 7 Ind
Falk Corp Milwaukee Wis
The Filer & Stowell Co Milwaukee 7 Wis
Jeffrey Mfg Co Columbus O
Kent Machine Co Cuyahoga Falls O (407)
Link Belt Co 300 W Pershing Chgo Ill
Lovejoy Flexible Coupling Co 5001 W Lake Chgo 44 Ill
Morse Chain Co 7601 Central Av Detroit 8 Mich

CRANES—overhead travelling

Chisholm Moore Hoist Corp Tonawanda N Y
Cleveland Crane & Engr Co Wickliffe O
Lane Mfg Co Montpelier Vermont (404)
Louden Machinery Co Fairfield Ia
Reading Chain & Block Corp 2100 Adams St Reading Pa
Richards-Wilcox Mfg Co Aurora Ill
David Round & Son Cleveland 5 Ohio
Shaw-Box Crane & Hoist Div Manning, Maxwell & Moore Inc Muskegon Mich
Shepard Niles Crane & Hoist Co Montour Falls N Y

CRANES—power industrial

Hyster Co Portland 8 Ore & Peoria 1 Ill
Reading Chain & Block Corp 2100 Adams Reading Pa
Richards-Wilcox Mfg Co Aurora Ill
The Ross Carrier Co Benton Harbor Mich
David Round & Son Cleveland 5 Ohio
Silent Hoist & Crane Co 860 63rd Brooklyn 20 N Y (402)
Washington Iron Works Seattle 4 Wash

CRANES—tractor & truck

Clyde Iron Works Inc Duluth 1 Minn
Hyster Co Portland 8 Ore & Peoria 1 Ill
Silent Hoist & Crane Co 860 63rd Brooklyn 20 N Y (402)
R G Le Tourneau Inc Peoria 3 Ill
Stimmel Winch Co 37-24 33rd St Long Island City 1 N Y
Taylor Machine Works Louisville Miss
Gar Wood Industries Inc Detroit 11 Mich

CRAYONS—lumber marking

American Crayon Co Sandusky O
Blaisdell Pencil Co Phila Pa
Eagle Pencil Co 703 E 13th New York 9 N Y
Frank R Buck 2133 W Touhy Chgo Ill (409)
Jos Dixon Crucible Co Jersey City N J
Lake Chemical Co 633 N Western Av Chgo 12
Markwell Mfg Co Inc 200 Hudson NY 13 NY (304)
National Crayon Co Easton Pa
Standard Crayon Mfg Co Danvers Mass
Union Crayon Co Lowell Mass

CREDIT INFORMATION

Lumbermen's Credit Assn Inc 608 S Dearborn Chgo Ill (385)

CUTTER HEADS

R N Fenton Co 1960 E Milwaukee Detroit Mich (408)
Samuel J Shimer & Sons Inc Milton Pa (406)

CUTTERS—asbestos shingle

Ruberoid Co 500 Fifth Av New York 18 N Y (196)
Specialty Tool Manufacturers Belleville Ill

CUTTERS—glass

Wm L Barrett Co 34 School St Bristol Conn
Otto Bernz Co Rochester N Y
Felker Mfg Co Torrance Calif
Fletcher Terry Co Forestville Conn (305)
Glaziers Tool Mfg Corp 611 W Adams Chgo Ill
E Karelsen Inc 125 W 45th St N Y 19 NY
Mephisto Tool Co Inc Hudson N Y
Millers Falls Co Greenfield Mass
F C Phillips Stoughton Mass
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (151)
Red Devil Tools Irvington 11 N J (288)
Ridgely Trimmer Co Springfield Ohio
Utica Drop Forge & Tool Corp Utica N Y

CUTTERS—insulation board

Kimball Mfg Co Inc Royal Oak Mich

CUTTERS—lock corner

E C Atkins & Co Indianapolis 9 Ind
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Huther Bros Saw Mfg Co Inc Rochester 7 N Y
S A Woods Machine Co Boston 27 Mass

CUTTERS—moulding

E C Atkins & Co Indianapolis 9 Ind
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Ekstrom, Carlson & Coe Rockford Ill
J A Fay & Egan Co Cincinnati 22 O
Samuel J Shimer & Sons Inc Milton Pa (406)
Stanley Electric Tools New Britain Conn (272)
Stencil Specialty Co Jersey City N J
Taylor-Stiles & Co Riegelsville N J (501)
S A Woods Machine Co Boston 27 Mass

DAMPERS—fireplace

Adams Co Dubuque Ia
Bennett-Ireland Norwich N Y (264)
Chattanooga Implement & Mfg Co Chattanooga 6 Tenn

Number in parenthesis indicates page on which advertisement appears

Colonial Fireplace Co 540 N Cicero Av Chgo 44 Ill
Covert H W Co 339 E 48th NY NY
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Gabriel Steel Co Detroit 12 Mich
Hart Mfg Co Louisville 3 Ky
Industrial Iron Works Portland 1 Ore
Majestic Co Huntington Ind (105)
Peerless Mfg Corp Louisville Ky
Sealcon Products Inc Minneapolis 2 Minn
Superior Fireplace Co Los Angeles Cal (261)
Swett A L Iron Wks Medina N Y
Western Fdry Co Portland 1 Ore

DECALCOMANIA TRANSFERS

Chicago Decalcomania Co 3310 Elston Av Chicago 18 Ill
Palm Bros Decalcomania Co Cincinnati 12 O

DECKS—gypsum roof

The Celotex Corp 120 S La Salle Chgo 3 Ill (226-227)
Certain-teed Prod Corp 120 S LaSalle St Chgo 3 Ill (215)

DIFFERENTIALS—automatic locking, truck axles

Detroit Automotive Products Corp Detroit 13 Mich (395)
Truckstell Mfg Co Union Commerce Bldg Cleveland 14 Ohio (405)

DIPPING VATS—lumber

Arrow Tank Co Inc Buffalo 14 N Y
The Filer & Stowell Co Milwaukee 7 Wis
Johnson & Carlson 848 W Eastman Chgo 22 Ill
Leitelt Iron Works Grand Rapids 2 Mich (408)
Richmond Engineering Co Inc Richmond Va
U S-Challenge Co Batavia Ill
Wood Treating Chemicals Co St Louis 10 Mo

DISHWASHERS—electric

Hotpoint Inc 5600 W Taylor St Chicago 44 Ill
General Electric Co Schenectady 5 N Y

DOLLIES

Morse Metal Products Co Inc 295 E 2nd St New York 9 N Y
Nutting Truck & Caster Faribault Minn

DOOR BELLS & CHIMES

J C Deagan Inc 1770 W Berteau Av Chgo Ill
Edwards & Co Inc Norwalk Conn
John H Graham & Co Inc 105 Duane Ave New York 8 N Y
Nu-Tone Inc Merchandise Mart Chicago 54 Ill
Pryne & Co Inc Los Angeles 54 Cal
The A E Rittenhouse Co Inc Honeoye Falls N Y
Russell & Erwin Div The American Hdw Corp New Britain Conn
Starr Bros Bell Co East Hampton Conn
Earl Webber Co 1313 W Randolph Chgo Ill

DOOR BOTTOMS—automatic

Columbia Industries 19th Av & 36th St Long Island City 5 N Y (507)
Macklanburg - Duncan Co Oklahoma City Okla (297)
Monarch Metal Weatherstrip Corp St Louis Mo
Thermal Co Philadelphia 19 Pa

DOOR CHECKS

Frantz Mfg Co Sterling Ill (298)
Kant Slam Door Check Co Bloomfield Ind
Newell Mfg Co Lowell Mich
Norton Door Closer Co 2900 N Western Av Chgo 18 Ill
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Reading Hdwe Corp Reading Pa
Richards-Wilcox Mfg Co Aurora Ill
Russell & Erwin Div The American Hdw Corp New Britain Conn
Yale & Towne Mfg Co Stamford Conn (269

DOOR CLOSERS

Bommer Spring Hinge Co 263 Classon Av Brooklyn 5 NY
Chicago Spring Hinge Co 1500 Carroll St Chicago Ill
P & F Corbin New Britain Conn
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
Independent Lock Co Fitchburg Mass (270)
Kawneer Co Niles Mich
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
Newell Mfg Co Lowell Mich
Norton Door Closer Co 2900 N Western Av Chgo 18 Ill
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Reading Hardware Corp Reading Pa
Richards-Wilcox Mfg Co Aurora Ill
Sargent & Co New Haven 9 Conn (295)
Shelby Spring Hinge Co Shelby Ohio

DOOR FRAMES—metal

Aetna Steel Products Corp 61 Broadway New York 6 N Y (steel) (132-133)
American Sheet Metal Wks New Orleans La
Chase Brass & Copper Co Waterbury 91 Conn
Detroit Steel Prod Co Detroit Mich
Goldsmith Metal Lath Co Cincinnati 32 O
International Fireproof Door Co Inc 157 Walworth St Brooklyn 5 N Y
Kawneer Co Niles Mich
Kewanee Mfg Co Kewanee Ill
Mesker Bros 4344 Geraldine St Louis 15 Mo (116-117)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Republic Steel Corp Cleveland 1 Ohio
Richards-Wilcox Mfg Co Aurora Ill
St Louis Fire Door Co St Louis 4 Mo
Truscon Steel Co Youngstown O
Williamsburg Steel Products Co 86 Quay St Brooklyn 22 N Y

DOOR FRAMES—wood

Biles-Coleman Lbr Co Inc Omak Wash (141)
Bradley Lumber Co of Arkansas Warren Ark (211)
Carr Adams & Collier Dubuque Ia (131)
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Crossett Lbr Co Crossett Ark
Curtis Companies Inc Clinton Ia
Deer Park Pine Industry Inc Deer Park Wash
Dierks Lbr & Coal Co Kansas City Mo
Farley & Loetscher Mfg Co Dubuque Iowa
Fordyce-Crossett Sales Co Fordyce Ark
Gregg & Son Nashua N H (125)
Huttig Mfg Co Muscatine Ia
Ideal Co Box 889 Waco Tex
International Fireproof Door Co Inc 157 Walworth St Brooklyn 5 N Y
Keystone Frame & Mfg Co Spokane 3 Wash
Kinzua Pine Mills Kinzua Ore (31)
The Long-Bell Lumber Co Kansas City 6 Mo
Long Lake Lumber Co Spokane Wash
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
Malta Mfg Co Malta O (144)
Marquart Millwork Co Oshkosh Wis (304)
Missoula White Pine Sash Co Missoula Mont
Morgan Co Oshkosh Wis
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Mutual Fir Column Co Tacoma Wash
Northwest Door & Plywood Sales Tacoma 1 Wash
Pacific Mutual Door Co Tacoma Wash
Radford & Sanders Inc Baltimore Md
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Wks Rock Island Ill
Roddis Lumber & Veneer Co Marshfield Wis
Segelke & Kohlhaus Co La Crosse Wis
Geo Silbernagel & Sons Co Wausau Wis
Frank C Snedaker & Co Inc Philadelphia 40 Pa
Southern Lbr Co Warren Ark
Spokane Pine Prod Co Spokane Wash
Trimpak Corp New Rochelle N Y
Washington Mfg Co Tacoma 1 Wash
Weyerhaeuser Sales Co St Paul Minn (34-35)
The Wheeler Osgood Co Tacoma 1 Wash (127)
White Pine Sash Co Spokane Wash

DOOR GUARDS

Chase Brass & Copper Co Waterbury 91 Conn
Cincinnati Iron Fence Co Inc Cincinnati 6 Ohio
The Columbus Brass Mfg Co 620 Dublin Av Columbus 16 Ohio
Cyclone Fence Div American Steel & Wire Co P O Box 260 Waukegan 1 Ill
Erco Mfg Co 4010 W Montrose Av Chgo Ill
J W Fiske Iron Works 78 Park Pl New York 7 N Y
Kentucky Metal Prods Co Inc Louisville Ky
Macklanburg - Duncan Co Oklahoma City Okla (297)
Nat'l Brass Co Grand Rapids Mich
Penn Hardware Co Reading Pa
The Stanley Wks New Britain Conn (272)
Wheeling Corrugating Co Wheeling W Va (357)

DOOR KNOCKERS

Barrows Lock Works North Chicago Ill (301)
Best Universal Lock Co 10 No Senate Indianapolis 4 Ind
Champion Hdwe Co Geneva O
J Chesler & Sons 41 Varick Av Brooklyn N Y
Colonial Brass Co Middleboro Mass
Lockwood Hardware Mfg Co Fitchburg Mass (270)
McKinney Mfg Co Pittsburgh 12 Pa
Norwalk Lock Co 395 Broadway NY 13 NY
S Parker Hardware Mfg Corp 27 Ludlow St New York 2 N Y
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn Hardware Co Reading Pa
Reading Hardware Corp Reading Pa
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Slaymaker Lock Co Lancaster Pa
Yale & Towne Mfg Co Stamford Conn (269)

DOOR STOPS

Champion Hardware Co Geneva Ohio
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Inc Philadelphia Pa
National Mfg Co Sterling Ill
Newell Mfg Co Lowell Mich
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Peabody Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn Hardware Co Reading Pa
Phoenix Hardware Mfg Co Buffalo N Y
Reflector Hardware Corp Western Av & 22nd Place Chicago Ill
Safe Padlock & Hardware Co Lancaster Pa
Shelby Metal Products Co Shelby Ohio
Shelby Spring Hinge Co Shelby Ohio
Starline Inc Harvard Ill
Yale & Towne Mfg Co Stamford Conn (269)

DOORS—access

Adams Co Dubuque Ia
Ames Metal Moulding Co Inc 228 E 144th St New York 51 N Y
Carr Adams & Collier Co Dubuque Iowa (131)
Columbia Metal Box Co 260 E 143rd St New York 51 N Y
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Knapp Bros Mfg Co Joliet Ill
Miami Cabinet Div of Philip Carey Co Middletown O
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Milcor Steel Co Milwaukee 4 Wis (319)
Morgan Co Oshkosh Wis
Rock Island Sash & Door Wks Rock Island Ill
St Louis Fire Door Co St Louis 4 Mo
Western Foundry Co Portland 1 Ore
Wheeling Corrugating Co Wheeling W Va (357)
Williamsburg Steel Products Co 86 Quay St Brooklyn 22 N Y

DOORS—accordion

Morgan Co Oshkosh Wis
New Castle Products New Castle Ind
Richards-Wilcox Mfg Co Aurora Ill

DOORS—ash pit & clean-out

Adams Co Dubuque Ia
Bennett-Ireland Norwich NY (264)
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill

Number in parenthesis indicates page on which advertisement appears

Chattanooga Implement & Mfg Co Chattanooga 6 Tenn
Copco Steel & Engineering Co 14035 Grand River Av Detroit 27 Mich
H W Covert Co 339 E 48th NY NY
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Eastern Connecticut Welding Corp New London Conn
Excelsior Stove & Mfg Co Quincy Ill
Gabriel Steel Co Detroit 12 Mich
Hart Mfg Co Louisville 3 Ky
Industrial Iron Works Portland 1 Ore
Kewanee Mfg Co Kewanee Ill
Majestic Co Huntington Ind (105)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Milcor Steel Co Milwaukee 4 Wis (319)
Peerless Mfg Co Louisville Ky
Portland Stove Fdry Co Portland Maine
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
St Paul Foundry & Mfg Co St Paul 3 Minn
Superior Fireplace Co Los Angeles Cal (261)
A L Swett Iron Wks Medina N Y
U S Hdwe & Mfg Co Pawtucket R I
Western Fdry Co Portland 1 Ore
Wheeling Corrugating Co Wheeling W Va (357)

DOORS—cellar bulkhead

Bilco Mfg Co New Haven 6 Conn
Williamsburg Steel Products Co 86 Quay St Brooklyn 22 N Y

DOORS—coal

Adams Co Dubuque Ia
Consolidated Expanded Metal Cos Wheeling W Va
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Majestic Co Huntington Ind (105)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Truscon Steel Co Youngstown 1 O
Western Foundry Co Portland 1 Ore
Wheeling Corrugating Co Wheeling W Va (357)

DOORS—combination

Carr Adams & Collier Co Dubuque Ia (131)
Combination Door Co Fond Du Lac Wis
Continental Screen Co Detroit Mich (119)
Curtis Cos Inc Clinton Ia
Farley & Loetscher Mfg Co Dubuque Ia
Gregg & Son Nashua N H (125)
The Long-Bell Lumber Co Kansas City 6 Mo
Marquart Millwork Co Oshkosh Wis 139)
Morgan Co Oshkosh Wis
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Northern Wood Products Co Detroit 26 Mich (106)
Northwest Door & Plywood Sales Tacoma 1 Wash
Pacific Mutual Door Co Tacoma Wash
Phenix Mfg Co Milwaukee Wis
Roach & Musser Co Muscatine Ia
F E Schumacher Co Hartville Ohio
Geo Silbernagel & Sons Co Wausau Wis
West Coast Screen Co Los Angeles 1 Cal
White Pine Sash Co Spokane Wash

DOORS—Dry kiln

Grand Rapids Vapor Kiln Inc Grand Rapids 2 Mich
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Standard Dry Kiln Co Indianapolis Ind

DOORS—fire

Cornell Iron Wks 36th Av & 13th Long Island City N Y
Diebold Inc Canton 2 O
Harris Preble Fire Doors Inc 4608-14 W 20th Cicero 50 Ill
Hubdor Metal Prod Corp 461 E 147th St NY NY
Internat'l Fireproof Door Co 157 Walworth Brooklyn N Y
Mesker Bros 4344 Geraldine St Louis 15 Mo (116-117)
Metal Clad Doors Inc Waltham Mass
National Kalamein Co Inc 418 Lexington Av Brooklyn N Y (metal covered wood)
Richards-Wilcox Mfg Co Aurora Ill
Richmond Engineering Co Inc Richmond Va
Roddis Lumber & Veneer Co Marshfield Wis
St Louis Fire Door Co St Louis Mo
Syracuse Fire Door Corp Syracuse N Y
Williamsburg Steel Products Co 86 Quay St Brooklyn 22 N Y
Willis Steel Corp Galesburg Ill

DOORS—flush

C-W Plywood Co 9 S Clinton Chgo Ill
W D Crooks & Sons Inc Williamsport Pa
Davis Plywood Corp 12555 Berea Road Cleveland 11 O
Ideal Co Box 889 Waco Tex
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
The Mengel Co Inc Louisville Ky (23-129)
Morgan Co Oshkosh Wis
Northwest Door & Plywood Sales Tacoma 1 Wash
Paine Lbr Co Ltd Oshkosh Wis
Rock Island Sash & Door Works Rock Island Ill
Roddis Lumber & Veneer Co Marshfield Wis
United States Plywood Corp 55 W 44th New York 18 N Y (129)
The Wheeler Osgood Co 1216 St Paul Av Tacoma 1 Wash (127)

DOORS—garage

Barber-Colman Co Rockford Ill
Berry Door Corp Birmingham Mich (338-339)
Carr Adams & Collier Co Dubuque Ia (131)
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Curtis Cos Inc Clinton Ia
C-W Plywood Co 9 S Clinton Chgo 6 Ill
Davis Plywood Corp Cleveland 11 O
Detroit Steel Products Co 2250 E Grand Blvd Detroit 11 Mich
Farley & Loetscher Mfg Co Dubuque Ia
Frantz Mfg Co Sterling Ill (298)
Holm's Mfg Co of Ohio Akron 8 O
Huttig Mfg Co Muscatine Ia
Louden Machinery Co Fairfield Iowa
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
Marquart Millwork Co Oshkosh Wis (139)
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Northwest Door & Plywood Sales Tacoma 1 Wash
Richards Wilcox Mfg Co Aurora Ill
Roach & Musser Co Muscatine Ia
Robinson Mfg Co Box 904 Everett Wash
Rock Island Sash & Door Wks Rock Island Ill
George J. Silbernagel 8 S Michigan Av Chgo 3 Ill
George Silbernagel & Sons Co Wausau Wis
Strand Building Products Co Detroit 26 Mich (341)
United States Plywood Corp 55 W 44th St New York 18 N Y (129)
Wagner Mfg Co Cedar Falls Iowa

DOORS—garage, overhead type

Barber-Colman Co Rockford Ill
Berry Door Co Birmingham Mich (338-339)
Carr Adams & Collier Co Dubuque Ia (131)
Clark Door Co Inc Newark 8 N J
The Commander Door Inc Lombard Ill (342)
Crawford Door Co Detroit Mich
Curtis Cos Inc Clinton Ia
Dyke Bros Little Rock Ark (141)
Farley & Loetscher Mfg Co Dubuque Ia
Fiddes Moore & Co 228 N La Salle St Chicago Ill (72)
Frantz Mfg Co Sterling Ill (298)
Hall Enterprises Casco Wis
Hallack & Howard Lbr Co Denver Colo
Harbor Plywood Corp Hoquiam Wash (26-27)
Holmes Mfg Co Los Angeles Cal
Holm's Mfg Co of Ohio Akron 8 Ohio
Louden Machinery Co Fairfield Iowa
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
McKee Door Co Aurora Ill
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Northwest Door & Plywood Sales Tacoma 1 Wash
Phenix Mfg Co Inc Milwaukee 12 Wis
Richards-Wilcox Mfg Co Aurora Ill
Roach & Musser Co Muscatine Ia
Robinson Mfg Co Box 904 Everett Wash
Rowe Mfg Co Galesburg Ill
Starline Inc Harvard Ill
Strand Building Products Co Detroit 26 Mich (steel) (341)
Truscon Steel Co Youngstown Ohio
U S Plywood Corp 55 W 44th NY NY (129)
Wagner Mfg Co Cedar Falls Iowa
Wilson Foundry & Machine Co Pontiac Mich (343)
J G Wilson Corp 370 Lexington Av NY 17 NY

DOORS—glass

Libbey-Owens-Ford Glass Co Toledo 0 (155-158)
Morgan Co Oshkosh Wis
National Mirror Works Rockford Ill
National Screen Door Co Montgomery 3 Ala
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Northwest Door & Plywood Sales Tacoma 1 Wash
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (151)
Schacht Associates Inc 415 E 55th St New York N Y
Segelke & Kohlhaus Co La Crosse Wis
The Wheeler Osgood Co Tacoma 1 Wash (127)

DOORS—hardwood

Anson & Gilkey Co Merrill Wis
American Plywood Corp New London Wis
Carr & Moehl Co Des Moines 9 Iowa
W D Crooks & Sons Inc Williamsport Pa
Curtis Cos Inc Clinton Ia
Dyke Bros Little Rock Ark (141)
Farley & Loetscher Mfg Co Dubuque Ia
Fiddes Moore & Co 228 N La Salle St Chicago Ill (72)
Harbor Plywood Corp Hoquiam Wash (26-27)
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
The Mengel Co Inc Louisville Ky (23-129)
Midland Bldg Industries Inc Indianapolis 6 Ind
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Northwest Door & Plywood Sales Tacoma 1 Wash
Paine Lumber Co Ltd Oshkosh Wis
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Wks Rock Island Ill
Roddis Lumber & Veneer Co Marshfield Wis
United States Plywood Corp 55 W 44th New York 18 N Y (129)
The Wheeler Osgood Co Tacoma 1 Wash (127)

DOORS—jalousie

Gate City Sash & Door Co Fort Lauderdale Fla (112-113)

DOORS—laundry chute

Air Control Products Inc Coopersville Mich (101)
Carr Adams & Collier Co Dubuque Ia (131)
Copco Steel & Engineering Co 14035 Grand River Av Detroit 27 Mich
Donley Bros Co 13928 Miles Av Cleveland 5 O (83-98)
Gabriel Steel Co Detroit 12 Mich

DOORS—metal

Kawneer Co Niles Mich (aluminum)
Newman Bros Inc 660 W 4th St Cincinnati 3 O (bronze, aluminum, stainless steel)

DOORS—plywood

American Plywood Corp New London Wis
Buffelen Lumber & Mfg Co Tacoma Wash
C-W Plywood Co 9 S Clinton Chgo Ill
Carr Adams & Collier Co Dubuque Iowa (131)
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Fiddes Moore & Co 228 N La Salle St Chicago Ill (72)
Frost Veneer & Plywood Co Inc Sheboygan Wis
Harbor Plywood Corp Hoquiam Wash (26-27)
Huttig Sash & Door Co St Louis Mo
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
The Mengel Co Inc Louisville Ky (23-129)
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Northwest Door & Plywood Sales Tacoma 1 Wash
Pacific Mutual Door Co Tacoma Wash
Paine Lbr Co Ltd Oshkosh Wis
Roddis Lumber & Veneer Co Marshfield Wis

Number in parenthesis indicates page on which advertisement appears

Geo J Silbernagel 8 S Michigan Av Chicago 3 Ill
U S Plywood Corp 55 W 44th NY NY (129)

DOORS—screen

Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Continental Screen Co Detroit 26 Mich (119)
Curtis Cos Inc Clinton Ia
Farley & Loetscher Mfg Co Dubuque Ia
Gregg & Son Nashua N H (125)
Harbor Plywood Corp Hoquiam Wash (26-27)
Hope's Windows Inc Jamestown N Y
Huttig Mfg Co Muscatine Ia
Ideal Co Box 889 Waco Tex
The Long-Bell Lumber Co Kansas City 6 Mo
Marquart Millwork Co Oshkosh Wis (139)
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
National Screen Co Suffolk Va
National Screen Door Co Montgomery 3 Ala
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Northwest Door & Plywood Sales Tacoma 1 Wash
Phenix Mfg Co Inc Milwaukee 12 Wis
Roach & Musser Co Muscatine Ia
Robinson Mfg Co Everett Wash
F E Schumacher Co Hartville O
Geo Silbernagel & Sons Co Wausau Wis
Geo J Silbernagel 8 S Michigan Av Chgo Ill
Southern Wire & Iron Works Atlanta Ga
White Pine Sash Co Spokane Wash

DOORS—shower, glass panel

The Kawneer Co Niles Mich
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Shower Door Co of America Atlanta 5 Ga

DOORS—sidewalk

Bilco Mfg Co New Haven 6 Conn
Logan Co Inc Louisville 6 Ky
Metal Crafters Div Castone Products Co Cedar Rapids Iowa (305)

DOORS—softwood

Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Curtis Cos Inc Clinton Ia
Dyke Bros Little Rock Ark (141)
Farley & Loetscher Mfg Co Dubuque Ia
Fiddes Moore & Co 228 N La Salle St Chicago Ill (72)
Fir Door Institute Tacoma 2 Wash
Gregg & Son Nashua N H (125)
Harbor Plywood Corp Hoquiam Wash (26-27)
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
Ideal Co Box 889 Waco Tex
Long-Bell Lbr Co Kansas City Mo
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
Marquart Millwork Co Oshkosh Wis (139)
Midland Bldg Industries Inc Indianapolis 6 Ind
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
National Screen Door Co Box 1887 Montgomery 3 Ala
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Northwest Door & Plywood Sales Tacoma 1 Wash
Pacific Mutual Door Co Tacoma Wash
Ponderosa Pine Woodwork 111 W Washington St Chicago 2 Ill
The Radford Co Oshkosh Wis
Roach & Musser Co Muscatine Ia
Robinson Mfg Co Everett Wash
Rock Island Sash & Door Wks Rock Island Ill
Geo Silbernagel & Sons Co Wausau Wis
Geo J Silbernagel 8 S Michigan Av Chgo Ill
Simpson Industries Inc Seattle Wash
Weyerhaeuser Sales Co St Paul Minn (34-35)

DOORS—steel

Adams Co Dubuque Ia
Aetna Steel Products Corp 61 Broadway New York 6 NY (132-133)
William Bayley Co Springfield O
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Cornell Iron Wks Inc 36th Av & 13th Long Island City 1 N Y
Detroit Steel Prods Co Detroit Mich
Diebold Inc Canton 2 O
The Edwards Mfg Co Cincinnati 2 Ohio
The Kawneer Co Niles Mich (metal)
Kinnear Mfg Co Columbus O
Mesker Bros 433 S 7th St Louis Mo (116-117)
National Kalamein Co Inc 418 Lexington Av Brooklyn N Y (fireproof)
St Louis Fire Door Co St Louis 4 Mo
St Paul Foundry & Mfg Co St Paul 3 Minn
F P Smith Wire & Iron Works Inc 2346 N Clybourn Av Chicago 14 Ill
Soule Steel Co San Francisco 24 Cal
Stewart Iron Wks Co Inc Cincinnati O
Truscon Steel Co Youngstown O
Williamsburg Steel Products Co 86 Quay St Brooklyn 22 N Y

DOORS—storm

Carr Adams & Collier Co Dubuque Ia (131)
Curtis Cos Inc Clinton Ia
Farley & Loetscher Mfg Co Dubuque Ia
Gregg & Son Nashua N H (125)
Hallack & Howard Lbr Co Denver Colo
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
The Long-Bell Lumber Co Kansas City 6 Mo
Marquart Millwork Co Oshkosh Wis (139)
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Northern Wood Products Co Detroit 26 Mich (106)
Northwest Door & Plywood Sales Tacoma 1 Wash
Phenix Mfg Co Milwaukee Wis
Radford Co Oshkosh Wis
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Wks Rock Island Ill
Geo Silbernagel & Sons Co Wausau Wis
Geo J Silbernagel 8 S Michigan Av Chgo Ill
Weyerhaeuser Sales Co St Paul Minn (34-35)
White Pine Sash Co Spokane Wash

DOORS—wood, cabinet & cupboard

Aetna Plywood & Veneer 1732 N Elston Av Chgo Ill (50)
American Plywood Corp New London Wis
Anson & Gilkey Co Merrill Wis
Carr Adams & Collier Co Dubuque Ia (131)
C-W Plywood Co 9 S Clinton Chgo Ill
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Curtis Cos Inc Clinton Ia
Farley & Loetscher Mfg Co Dubuque Ia
Gregg & Son Nashua N H (125)
Hallack & Howard Lbr Co Denver Colo
Harbor Plywood Corp Hoquiam Wash (26-27)
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
The Long-Bell Lumber Co Kansas City 6 Mo
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
Morgan Co Oshkosh Wis
Northwest Door & Plywood Sales Tacoma 1 Wash
Pacific Mutual Door Co Tacoma Wash
Paine Lbr Co Ltd Oshkosh Wis
Phenix Mfg Co Milwaukee Wis
The Radford Co Oshkosh Wis
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Wks Rock Island Ill
Roddis Lumber & Veneer Co Marshfield Wis
Segelke & Kohlhaus Co La Crosse Wis

DOWELS—wood

American Fork & Hoe Co Cleveland O
Bradley Miller & Co Bay City Mich
R F Cooke Mfg Co Orange Mass
Despres Dowel Mfg Co Grand Rapids Mich
Englewood Dowel Co 222 W North Bank Dr Chgo Ill
Fordyce-Crossett Sales Co Fordyce Ark
Grand Rapids Dowel Wks Grand Rapids Mich
Edw Hines Lbr Co 77 W Washington Chgo Ill (377)
Holt Hardwood Co Oconto Wis (208)
G F League Lumber Co Box 125 Greenville S C
H B Lyons Co Union City Pa
McMinnville Handle Co McMinnville Tenn
Harry Meyer Wood Prod 1654 W Hubbard Chgo 1 Ill
Morgan Lumber Co Jackson Tenn
Nasnotah Moulding & Mfg Co Nashotah Wis
Norton Mfg Co Memphis 9 Tenn
Northwoods Mfg Co Inc Manistique Mich
George J Sibernagel 8 S Michigan Av Chgo 3 Ill
South Bend Dowel Wks South Bend Ind
H A Stiles Co 174 Portland St Boston 14 Mass
Superior Plastic Co 426 N Oakley Chicago (plastic)
The Wellman Products Co Cleveland 3 Ohio

DRAFTING SUPPLIES

Eugene Dietzgen Co 2425 N Sheffield Av Chgo Ill
Chas M Higgins & Co 271 9th Brooklyn N Y
Keuffel & Esser Co Hoboken N J
Frederick Post Co 155 E Ohio Chgo Ill
H E Smith Co Adrian Mich
Universal Drafting Machine Co Cleveland 14 O
Warren Knight Co Philadelphia 7 Pa

DRILL PRESSES

Boice Crane Co Toledo 6 O
Champion Blower & Forge Co Lancaster Pa
Delta Mfg Co Milwaukee Wis
Walker-Turner Co Inc Plainfield N J
The Wellman Products Co Cleveland 3 Ohio
Yates-American Machine Co Beloit Wis

DRILLS—masonry

Brunner & Lay Co 727 S Jefferson Chgo Ill
Cincinnati Tool Co Cincinnati O
Damascus Steel Prod Corp Rockford Ill
Hood Bros Frankford Philadelphia 24 Pa
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Kraeuter & Co Newark N J
Mayhew Steel Products Inc Shelburne Falls Mass
Millers Falls Co Greenfield Mass
Milwaukee Electric Tool Corp 5360 W State St Milwaukee 8 Wis
New England Carbide Tool Co Inc Cambridge 39 Mass (305)
Oxford Tool Co Philadelphia 22 Pa
Phillips Drill Co 4700 W 5th Av Chgo Ill
Plomb Tool Co Los Angeles Cal
Rainey-Tools Grove City Pa
Rawlplug Co Inc 271 Church St New York 13 N Y
Red Devil Tools Irvington 11 NJ (288)
Sullivan Machinery Co Michigan City Ind
Vulcan Tool Mfg Co Quincy Mass
Wodack Electric Tool Corp 4627 W Huron Chgo 44 Ill

DRILLS—portable electric

Black & Decker Mfg Co Towson 4 Md
Chicago Pneumatic Tool Co 6 E 44th St New York 17 N Y
Chicago Wheel & Mfg Co Dept EE 1101 W Monroe St Chgo Ill
Cincinnati Electrical Tool Co Cincinnati O
Jas Clark Jr Electric Co Inc Louisville Ky
Independent Pneumatic Tool Co 600 W Jackson Chgo 6 Ill
Louisville Electric Mfg Co Louisville Ky
Mall Tool Co 7733 S Chicago Av Chgo Ill (283)
Millers Falls Co Greenfield Mass
Milwaukee Electric Tool Corp Milwaukee Wis
Misener Mfg Co Inc Syracuse N Y
Schauer Machine Co Cincinnati O
Signal Electric Mfg Co Menominee Mich
Skilsaw Inc 5033 N Elston Av Chgo Ill
Speedway Mfg Co 1834 S 52nd Av Cicero Ill
Stanley Electric Tools 111 Elm New Britain Conn (272)
Syntron Co Homer City Pa
Wodack Electric Tool Corp 4627 W Huron Chgo Ill

DRILLS—wood

Syracuse Twist Drill Co Syracuse N Y

Number in parenthesis indicates page on which advertisement appears

DRIVERS—glazier

Austin & Eddy Inc Boston 4 Mass
Red Devil Tools Irvington 11 NJ (288)

DRYERS—basket

Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Standard Dry Kiln Co Indianapolis Ind

DRYERS—panel

Detroit Sheet Mtl Wks Detroit Mich
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Standard Dry Kiln Co Indianapolis Ind

DRYERS—veneer

Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Standard Dry Kiln Co Indianapolis Ind

DRY KILNS

Grand Rapids Vapor Kiln Inc Grand Rapids 2 Mich
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Perfection Dry Kiln Inc Box 453 Jamestown N Y (408)
Richmond Engineering Co Inc Richmond Va
Robert W Risser Box 91 Little Rock Ark
Standard Dry Kiln Co Indianapolis Ind

DUST CHUTES

Air Control Products Inc Coopersville Mich (101)

DUST COLLECTING SYSTEMS

Allington & Curtis Mfg Co Saginaw Mich
American Blower Corp Detroit 32 Mich
American Foundry Equipment Co Mishawaka Ind
The C O Bartlett & Snow Co 6200 Harvard Av Cleveland 5 Ohio
Corinth Machinery Co Corinth Miss (388)
Detroit Sheet Mtl Wks Detroit Mich
Houston Blow Pipe & Sht Met Wks Houston Tex (400-401)
Kirk & Blum Mfg Co Cincinnati O
The Macleod Co Cincinnati 22 O
St Louis Blow Pipe & Heater Co St Louis Mo
Westinghouse Electric Corp Sturtevant Div Hyde Park Boston 36 Mass (331)

DUSTERS—insecticide

Lowell Mfg Co Dept 63 589 E Illinois St Chicago 11 Ill (321)

EAVES TROUGHS

Barnes Metal Products Co 4425 W 16th St Chicago 23 Ill
Cincinnati Sheet Metal & Roofing Co Cincinnati 2 O
The Edwards Mfg Co Cincinnati 2 Ohio
Klauer Mfg Co Dubuque Iowa
LaCrosse Steel Roofing & Corrugating Co LaCrosse Wis
Milcor Steel Co Milwaukee 4 Wis (319)
Northwest Metal Prod Inc Seattle 4 Wash
Reeves Steel & Mfg Co Dover Ohio
Republic Steel Corp Cleveland 1 Ohio
St Paul Corrugating Co St Paul Minn
Wheeling Corrugating Co Wheeling W Va (357)
Williams-Wallace Co San Francisco 7 Cal

EDGERS—floor

Red Devil Tools Irvington 11 N J (288)

EDGERS—sawmill

Allis Chalmers Mfg Co Milwaukee Wis (398)
Corinth Machinery Co Corinth Miss (388)
Corley Mfg Co Chattanooga 1 Tenn
Cunningham Mchy Co Shreveport La (298)
Enterprise Co Columbiana Ohio (408)
The Filer & Stowell Co Milwaukee 7 Wis
Frick Co Waynesboro Penna
Gordon Hollow Blast Grate Co Greenville Mich
R R Howell Co Minneapolis 14 Minn
Kent Machine Co Cuyahoga Falls Ohio (407)
Lane Mfg Co Montpelier Vermont (404)
Miner Edger Works Meridian Miss
Prescott Co Menominee Mich
The Wheland Co Chattanooga 2 Tenn

ENAMEL

Akron Paint & Varnish Co Akron 1 O (24)
Alabastine Paint Prod Grand Rapids Mich
American Marietta Co 43 E Ohio Chgo 11 Ill
Atlantic Paint & Varnish Works Wilmington N C
Baker Paint & Varnish Co Jersey City N J
Berry Bros Inc Detroit 7 Mich
Boston Varnish Co Boston 49 Mass (178)
The A Burdsal Co Indianapolis 9 Ind
Central Paint & Varnish Wks Brooklyn N Y
Chi-Namel Paint & Varnish Co Minneapolis Minn
E I Dupont de Nemours & Co Inc Wilmington Del
Elliott Paint & Varnish Co 4523 W 5th Av Chicago 24 Ill
Felton Sibley & Co Inc 136 N 4th Philadelphia 6 Pa
Forman Ford & Co Minneapolis 1 Minn
Glidden Co Cleveland O
Great Lakes Varnish Works Inc 2215 N Pulaski Rd Chicago 39 Ill
A C Horn Co 43-42 Tenth Long Island City 1 NY
Keystone Varnish Co 71 Otsego St Brooklyn 31 N Y
Lowe Bros Co Dayton O (173)
John Lucas & Co Philadelphia Pa
John W Masury & Son Inc Baltimore Md
Benjamin Moore & Co 511 Canal NY 13 NY
Murphy Paint Div Interchemical Corp Newark 1 N J
The O'Brien Corp South Bend 21 Ind
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Patterson Sargent Co Cleveland 14 O
Peaslee-Gaulbert Paint & Varnish Corp Louisville Ky
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Rogers Paint Products Inc 8250 St Aubin St Detroit 11 Mich
St Louis Surfacer & Paint Co 4200 Arlington Av St Louis 20 Mo
Sargent-Gerke Co Indianapolis 6 Ind
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Sheboygan Paint Co Sheboygan Wis
Sherwin Williams Co Cleveland O (183)
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Standard Varnish Works 2589 Richmond Terrace Staten Island 3 N Y
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
The Sullivan Co Memphis 2 Tenn
Truscon Laboratories Detroit Mich
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
U S Gutta Percha Paint Co Dept 19 Dudley & Eddy Providence 1 R I
Valentine & Co Inc 11 E 36th NY 16 NY
Vita-Var Corp Newark N J (508)
Wadsworth Howland & Co 141 Federal Boston Mass
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass

ENGINES—diesel

Buda Co Harvey Ill
Caterpillar Tractor Co Peoria Ill
Cleveland Diesel Engine Div General Motors Corp Cleveland 11 Ohio
Cummins Engine Co Columbus Ind
Fairbanks Morse & Co 600 S Michigan Av Chicago Ill
Hill Diesel Engine Co Lansing Mich
Ingersoll-Rand Co 11 Bdway NY NY
International Harvester Co 180 N Michigan Chgo Ill
Nordberg Mfg Co Milwaukee 7 Wis
Washington Iron Works Seattle 4 Wash
Waukesha Motor Co Waukesha Wis
Witte Engine Works Div of Oil Well Supply Co Kansas City 3 Mo
Worthington Pump & Machinery Corp Harrison N J

ENGINES—gasoline

Aermotor Co 2500 Roosevelt Rd Chgo Ill
Allis-Chalmers Mfg Co Milwaukee 1 Wis (398)
Briggs & Stratton Corp Milwaukee Wis
Buda Co Harvey Ill
John Deere Tractor Co Waterloo Ia
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Fuller & Johnson Mfg Co Madison Wis
Homelite Corp Port Chester N Y
Internat'l Harvester Co Inc 180 N Michigan Av Chgo Ill
Jacobson Mfg Co Racine Wis
Lauson Co New Holstein Wis
Nova Engine Co Lansing Mich
Universal Motor Co Oshkosh Wis
Willys-Overland Motors Inc Toledo 10 O
Witte Engine Works Div of Oil Well Supply Co Kansas City 3 Mo

ENGINES—steam

Corinth Machinery Co Corinth Miss (388)
A B Farquhar Co York Pa
The Filer & Stowell Co Milwaukee 7 Wis
Nordberg Mfg Co Milwaukee 7 Wis
Prescott Co Menominee Mich
Washington Iron Works Seattle 4 Wash

FANS—attic

Airmaster Corp 4317 Ravenswood Av Chgo Ill
American Blower Corp Detroit Mich
Bar-Brook Mfg Co Inc Shreveport La
Brower Mfg Co Quincy Ill
Buffalo Forge Co Buffalo N Y
Champion Blower & Forge Co Lancaster Pa
Connecticut Blower Co P O Box 884 Hartford 1 Conn
Diehl Mfg Co 1124 Finderne Av Somerville N J
Emerson Electric Mfg Co St Louis Mo
Ilg Electric Ventilating Co 2850 N Crawford Av Chgo Ill
Hunter Fan & Ventilating Co Memphis Tenn
Johnson Fan & Blower Corp 1319 W Lake Chgo Ill
The Herman Nelson Corp 540 N Michigan Chgo Ill
Signal Electric Mfg Co Menominee Mich
Universal Blower Co Birmingham Mich
Viking Air Conditioning Corp Cleveland O
Edgar T Ward Co Inc River Forest Ill
Westinghouse Electric Corp Sturtevant Div Boston 36 Mass (331)

FANS—dry kiln

Champion Blower & Forge Co Lancaster Pa
Clarage Fan Co Kalamazoo 16 Mich
Grand Rapids Vapor Kiln Inc Grand Rapids 2 Mich
International Engineering Inc Dayton 1 Ohio
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Reynolds Electric Co 2650 W Congress St Chicago 12 Ill
Standard Dry Kiln Co Indianapolis Ind
Westinghouse Electric Corp Sturtevant Div Boston 36 Mass (331)

FANS—industrial

Allington & Curtis Mfg Co Saginaw Mich
American Blower Corp Detroit Mich
Bauer Bros Co Springfield Ohio
Buffalo Forge Co Buffalo N Y
Champion Blower & Forge Co Lancaster Pa
Clarage Fan Co Kalamazoo 16 Mich
Connecticut Blower Co P O Box 884 Hartford 1 Conn
Emerson Electric Mfg Co St Louis 3 Mo
Houston Blow Pipe & Sht Met Wks Houston Tex (400-401)
Hunter Fan & Ventilating Co Memphis Tenn
Ilg Electric Ventilating Co 2850 N Crawford Av Chgo 41 Ill
Jacksonville Blow Pipe Co Jacksonville Fla
Joy Mfg Co Sullivan Div Michigan City Ind
The Herman Nelson Corp 540 N Michigan Chgo Ill
Reynolds Electric Co 2650 W Congress St Chicago 12 Ill
Robbins & Myers Inc Springfield O
Westinghouse Electric Corp Sturtevant Div Boston 36 Mass (331)

FANS—wall & ceiling

American Blower Corp Detroit Mich
Buffalo Forge Co Buffalo N Y
Champion Blower & Forge Co Lancaster Pa
Connecticut Blower Co P O Box 884 Hartford 1 Conn
Delco Appliance Div General Motors Sales Corp Rochester N Y
Diehl Mfg Co 1124 Finderne Av Somerville N J

Number in parenthesis indicates page on which advertisement appears

Emerson Elec Mfg Co St Louis Mo
Hunter Fan & Ventilating Co Memphis Tenn
Ilg Electric Ventilating Co 2850 N Crawford Av Chicago 41 Ill
The Herman Nelson Corp 540 N Michigan Chgo Ill
Pryne & Co Inc Los Angeles 54 Cal
Reynolds Electric Co 2650 W Congress Chgo 12 Ill
Robbins & Myers Inc Springfield Ohio
Samson-United Corp Rochester N Y
Shepler Mfg Co Pittsburgh Pa
Signal Elec Mfg Co Menominee Mich
F A Smith Mfg Co Inc Rochester 2 N Y
Tennessee Valley Associates Inc Nashville 3 Tenn
Universal Blower Co Birmingham Mich
Victor Elec Prod Inc Cincinnati Ohio (333)
Edgar T Ward Co Inc 7777 W Lake River Forest Ill
Westinghouse Electric Corp Sturtevant Div Boston 36 Mass (331)

FASTENERS—corrugated steel

Austin & Eddy Inc Boston 4 Mass
Columbia Steel Co San Francisco Cal (309)
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
The Stanley Wks New Britain Conn (272)

FASTENERS—door chain

Allied Hardware Corp 328 Grand Av Brooklyn 5 N Y (300)
Champion Hdwe Co Geneva O
Griffin Mfg Co Erie Pa
McKinney Mfg Co Pittsburgh 12 Pa
National Brass Co Grand Rapids Mich
Norwalk Lock Co 395 Broadway NY 13 NY
Penn Hardware Co Reading Pa
Reading Hardware Corp Reading Pa
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works Div of the Yale & Towne Mfg Co North Chicago Ill
Sargent & Co New Haven Conn (295)
Shelby Spring Hinge Co Shelby Ohio
Slaymaker Lock Co Lancaster Pa
Yale & Towne Mfg Co Stamford Conn (269)

FASTENERS—wood joint

Superior Fastener Corp 2949 N Elston Av Chicago 18 Ill
Wright Products Co St Paul Park Minn

FEEDS—belt, sawmill

Allis Chalmers Mfg Co Milwaukee Wis (398)
American Saw Mill Machinery Co Hackettstown N J
Corley Mfg Co Chattanooga 1 Tenn
Cunningham Mchy Co Shreveport La (398)
Kent Machine Co Cuyahoga Falls Ohio (407)
Lane Mfg Co Montpelier Vermont (404)
The Wheland Co Chattanooga 2 Tenn

FELT—asphalt roofing

American Asphalt Roof Corp Kansas City Mo
Barrett Div Allied Chem & Dye Corp 40 Rector NY NY (223)
Bird & Son E Walpole Mass
Philip Carey Mfg Co Cincinnati 15 O (235)
Certain-teed Prod Corp 120 S La Salle Chgo 3 Ill (215)
Flintkote Co 30 Rockefeller Plaza NY NY
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
Globe Roofing Prod Co Inc Whiting Ind
Koppers Co Pittsburgh Pa
Lehon Co 4425 S Oakley Ave Chgo Ill
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Jones & Brown Inc Pittsburgh Pa
B F Nelson Mfg Co Minneapolis 13 Minn
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
The Texas Co 135 E 42nd NY NY (217)

FENCE—barbed wire

American Steel & Wire Co Cleveland O (309)
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Century Fence Co Waukesha Wis
Colorado Fuel & Iron Corp Denver 1 Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Copperweld Steel Co Glassport Pa
Keystone Steel & Wire Co Peoria Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Nichols Wire & Steel Co Davenport Iowa (219)
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh Pa
Republic Steel Corp Cleveland 1 Ohio
Tennessee Coal Iron & R R Co Birmingham Ala (309)

FENCE—chain link

American Chain Link Fence Co Medford Mass
American Steel & Wire Co Cleveland O (309)
Anchor Post Fence Co Baltimore 24 Md
Atlas Fence Co Philadelphia Pa
Century Fence Co Waukesha Wis
Chain Link Fence Corp 1629 W 31st Chgo Ill
Cincinnati Iron Fence Co Inc Cincinnati 6 Ohio
Colorado Fuel & Iron Corp Denver 1 Colo
Continental Steel Corp Kokomo Ind (313)
Copperweld Steel Co Glassport Pa
Interlocking Fence Co Morton Ill
Nichols Wire & Steel Co Davenport Iowa (steel and aluminum) (219)
Page Steel & Wire Div American Chain & Cable Co Inc Monessen Pa
Pittsburgh Steel Co Pittsburgh Pa
Robertson Steel & Iron Co Cincinnati O
F P Smith Wire & Iron Wks 2342 Clybourn Av Chgo Ill
Stewart Iron Wks Co Inc Cincinnati 1 O
Wickwire-Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y

FENCE—rustic

Fence Co of America 608 S Dearborn St Chicago 5 Ill (322)
Mac Gillis & Gibbs Milwaukee 2 Wis
Harry M Wolfe 666 Lake Shore Dr Chicago 11 Ill
Wood Products Co Toledo 12 O (320)

FENCE—snow

Capitol Fence Co 735 N Water Milwaukee Wis
E S Gaynor Lumber Co Sioux City 1 Iowa
L L Hutchinson Pavilian N Y
Illinois Wire & Mfg Co Joliet Ill (314)
Lincraft Inc Burlington N J
Mattson Wire & Mfg Co Inc Joliet Ill
Nebraska Bridge Supply & Lumber Co Omaha 5 Neb
Rowe Mfg Co Galesburg Ill
Wheeler-Arnold Co Wittenberg Wis

FENCE—steel lawn

American Chain Link Fence Co Medford Mass
American Steel & Wire Co Cleveland O (309)
Anchor Post Fence Co Baltimore Md
Century Fence Co Waukesha Wis
Chain-Link Fence Corp 1629 W 31st Chgo Ill
Cincinnati Iron Fence Co Inc Cincinnati 6 Ohio
Colorado Fuel & Iron Corp Denver 1 Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Cyclone Fence Div American Steel & Wire Co P O Box 260 Waukegan 1 Ill
Keystone Steel & Wire Co Peoria Ill
Metal Crafters Div Castone Products Co Cedar Rapids Iowa (305)
Mid-States Steel & Wire Co Crawfordsville Ind
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh Pa
Sheffield Steel Corp Kansas City Mo
F P Smith Wire & Iron Wks 2346 Clybourn Av Chgo Ill
Southern Wire & Iron Works Atlanta Ga
Stewart Iron Wks Co Inc Cincinnati O
Tennessee Coal Iron & R R Co Birmingham 2 Ala (309)

FENCE—wood picket

Atlas Fence Co Philadelphia Pa
Capitol Fence Co 735 N Water Milwaukee Wis
Century Fence Co Waukesha Wis
Collison Fence Co Orange N J
Concord Woodworking Co West Concord Mass
The Davis & Siehl Co Cincinnati 23 O
Dubois-Reeves Fences Inc Bergen N J
Fence Co of America 608 S Dearborn Chgo 5 Ill (322)
Fordyce-Crossett Sales Co Fordyce Ark
E S Gaynor Lumber Co Sioux City 1 Iowa
Illinois Wire & Mfg Co Joliet Ill (314)
Lincraft Inc Burlington N J
Mac Gillis & Gibbs Milwaukee 2 Wis
Mattson Wire & Mfg Co Joliet Ill
Mutual Fir Column Co Tacoma Wash
Nebraska Bridge Supply & Lumber Co Omaha 5 Neb
Redwood Garden Materials Co Los Angeles 21 Cal
Rock Island Sash & Door Works Rock Island Ill
Rowe Mfg Co Galesburg Ill

FENCE—woven wire

American Steel & Wire Co Cleveland O (309)
Atlas Fence Co Philadelphia 34 Pa
Bethlehem Steel Co Bethlehem Pa
Ceco Steel Products Corp 5701 W 26th Chicago 50 Ill
Century Fence Co Waukesha Wis
Colorado Fuel & Iron Corp Denver Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Copperweld Steel Co Glassport Pa
Jones & Laughlin Steel Corp Pittsburgh Pa
Keystone Steel & Wire Co Peoria Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Nichols Wire & Steel Co Davenport Iowa (219)
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh Pa
Republic Steel Corp Cleveland 1 Ohio
Sheffield Steel Corp Kansas City Mo
F P Smith Wire & Iron Works Inc 2346 N Clybourn Av Chicago 14 Ill
Standard Fence Co Oakland Cal
Tennessee Coal Iron & R R Co Birmingham Ala (309)
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y

FENCE CONTROLLERS—electric

Coburn Mfg Co Whitewater Wis
Electrite Fence Co Whitewater Wis
Gardner Mfg Co Horicon Wis
Guaranteed Products Wellington Ohio
Prime Mfg Co Milwaukee Wis
Red Devil Tools Irvington 11 N J (288)
Reynolds Electric Co 2650 W Congress Chicago 12 Ill

FILERS—saw, band, circular, etc.

Corley Mfg Co Chattanooga Tenn
Foley Mfg Co Minneapolis 13 Minn
Hanchett Mfg Co Big Rapids Mich
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
The Filer & Stowell Co Milwaukee 7 Wis
Yates-American Mach Co Beloit Wis

FILES

E C Atkins & Co Indianapolis 9 Ind
Chelsea File Wks Norwich Conn
Delta File Wks Inc Philadelphia 37 Pa
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Heller Brothers Newark 4 N J
Nicholson File Co Providence R I
Nolvex File Co Cleveland O
Plomb Tool Co Los Angeles 54 Cal
Fayette R Plumb Inc Philadelphia Pa
Sandvik Saw & Tool Corp 47 Warren NY NY
Simonds Saw & Steel Co Fitchburg Mass

FILLER—crack

Blue Ridge Talc Co Inc Henry Va
Boston Varnish Co Boston 49 Mass (178)
Boyle-Midway Inc 257 Cornelison Av Jersey City 2 N J (182)
Carbola Chemical Co Inc Natural Bridge N Y
Consumers Glue Co St Louis 6 Mo
Donald Durham Co Des Moines Ia (184)
Farwell Ozmun Kirk & Co St Paul 1 Minn

Number in parenthesis indicates page on which advertisement appears

The Foy Paint Co Inc Cincinnati 12 Ohio
Glidden Co Cleveland Ohio
Keystone Asphalt Products Co 43 E Ohio St Chicago 11 Ill
Lignotite Co 882 Milwaukee Ave Chgo 22 Ill
Mixtite Corp North Haven Conn
National Casein Sales 601 W 80th Chgo 20 Ill
Perkins Glue Co Lansdale Pa
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Reardon Co St Louis 6 Mo (185)
Reliable Paste Co 3560 Shields Av Chicago Ill
Rogers Paint Products Inc 8250 St Aubin St Detroit 11 Mich
Savogran Co India Wharf Boston 10 Mass (170)
Schalk Chemical Co Los Angeles 12 Cal
Steelcote Mfg Co St Louis 3 Mo
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Technical Supply Co 1911 University Av Palo Alto Cal
Tilette Cement Co Inc 401 Lafayette St New York 3 N Y
United States Gypsum Co 300 W Adams St Chicago 6 Ill
Webb Products Co San Bernardino Calif & Norcross Ga (172)

FILLER—wood

Alabastine Paint Products Grand Rapids 9 Mich
Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Atlantic Paint & Varnish Works Wilmington N C
Berry Bros Inc 211 Leib St Detroit 7 Mich
Boyle-Midway Inc Jersey City 2 N J (182)
Carbola Chemical Co Inc Natural Bridge N Y
Donald Durham Co Des Moines 4 Iowa (184)
Farwell Ozmun Kirk & Co St Paul 1 Minn
W P Fuller & Co 301 Mission San Fran 19 Cal
Glidden Co Cleveland Ohio
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
Keystone Varnish Co 71 Otsego St Brooklyn 31 N Y
Lignotite Co 882 Milwaukee Ave Chgo 22 Ill
Murphy Paint Div Interchemical Corp Newark 1 N J
The O'Brien Corp South Bend 21 Ind
Perkins Glue Co Lansdale Pa
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Reliable Paste Co 3560 Shields Av Chicago 9 Ill
Savogran Co India Wharf Boston 10 Mass (170)
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Steelcote Mfg Co St Louis 3 Mo
Technical Supply Co 1911 University Av Palo Alto Cal
United States Plywood Corp 55 W 44th St New York 18 N Y (179)
The Wilbur & Williams Co Boston 16 Mass
Webb Products Co San Bernardino Calif and Norcross Ga (172)

FINANCING SERVICE

Allied Bldg Credits Inc St Paul 1 Minn
Commercial Credit Co Baltimore 2 Md
Investors Syndicate Roanoke Bldg Minneapolis Minn
Lawrence Warehouse Co WP Story Bldg Los Angeles Calif

FIRE ESCAPES

Bilco Mfg Co New Haven 6 Conn
Chas F Davy Co Syracuse N Y
Decatur Iron & Steel Co Decatur Ala
General Detroit Corp Detroit 7 Mich
Logan Co Inc Louisville 6 Ky
Metal Crafters Div Castone Products Co Cedar Rapids Iowa (305)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Newark Ladder & Bracket Sales Co Inc Newark 3 N J
Chas Parker Co Meriden Conn
St Paul Foundry & Mfg Co St Paul 3 Minn
F P Smith Wire & Iron Wks 2346 N Clybourn Chgo Ill

FIRE EXTINGUISHERS

W D Allen Mfg Co 566 W Lake Chgo 6 Ill
American La France Foamite Corp Elmira N Y
Fyr-Fyter Co Dayton 1 O
General Detroit Corp Detroit 7 Mich
Grinnell Co Providence R I
International Fire Equip Corp 94 State Staten Island 10 N Y
Walter Kidde & Co Inc Belleville N J
Pyrene Mfg Co 560 Belmont Av Newark 8 NJ
Safety Fire Extinguisher Co 291 7th NY NY
D B Smith & Co Utica N Y (409)
Standard Extinguisher Co Boston Mass

FIREPLACE EQUIPMENT

Adams Co Dubuque Ia
Bennett-Ireland Norwich NY (264)
Chattanooga Implement & Mfg Co Chattanooga Tenn
Colonial Brass Co Middleboro Mass
Colonial Fireplace Co 540 N Cicero Av Chgo 44 Ill
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Eastern Connecticut Welding Corp New London Conn
Hart Mfg Co Louisville 3 Ky
Heatilator Inc Syracuse N Y (256)
S M Howes Inc Fall River Mass
Kewanee Mfg Co Kewanee Ill
Laurelton Fdry Co Laurelton Pa
Logan Co Inc Louisville 6 Ky
Majestic Co Huntington Ind (105)
Ohio Fdry & Mfg Co Steubenville O
Sheffield Mfg Co 119 W 25th NY NY
Superior Fireplace Co Los Angeles 15 Cal (261)
A L Swett Iron Wks Medina N Y
Wayne Agricultural Wks Inc Goldsboro N C
Western Foundry Co Portland 1 Ore

FIREPLACE UNITS

Bennett-Ireland Norwich NY (264)
Bilco Mfg Co New Haven 6 Conn
Colonial Fireplace Co 540 N Cicero Av Chgo 44 Ill
H W Covert Co 339 E 48th NY NY
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Eastern Connecticut Welding Corp New London Conn
The Edwards Mfg Co Cincinnati 2 Ohio
Heatilator Inc Syracuse N Y (256)
Majestic Co Huntington Ind (105)
The Readybuilt Products Co 1707 McHenry Baltimore 23 Md
Superior Fireplace Co Los Angeles 15 Cal (261)

FIREPLACES—outdoor

Adams Co Dubuque Ia
Bilco Mfg Co New Haven 6 Conn
Colonial Fireplace Co 540 N Cicero Av Chgo 44 Ill
H W Covert Co 339 E 48th NY NY
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Hancock Iron Wks Pontiac 14 Mich
The Majestic Co Huntington Ind (105)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Outdoor Oven Fireplace Co Hartford 6 Conn (318)
Allen Selby Assoc 1836 Chase Ave Chgo Ill

FIREPROOFING CHEMICALS—wood

Albi Firepel Corp 9 Park Pl NY NY
American Lbr & Treating Co 332 S Mich Chgo 4 Ill (65)
E I Dupont de Nemours & Co Inc Wilmington Del
Forman Ford & Co Minneapolis 1 Minn
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
Monsanto Chemical Co 1700 S Second St Louis 4 Mo
Protexol Corp 40 Market St Kenilworth N J (18)
Victor Chemical Wks 141 W Jackson Chgo Ill
The Wilbur & Williams Co Boston 16 Mass (fire resistant paint)
Wood Treating Chemicals Co St Louis 10 Mo

FIXTURES—store display

American Plywood Corp New London Wis
Ames Metal Moulding Co Inc 228 E 144th St New York 51 N Y
Equipto Div of Aurora Equipment Co Aurora Ill
General Wood Works Council Bluffs Ia
W C Heller & Co Montpelier O
Knape & Vogt Mfg Co Grand Rapids 4 Mich
Marvel Rack Mfg Co Minneapolis Minn
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
Universal Equip Co 3401 W Division Chgo Ill

FLASHING—roof

American Brass Co Waterbury Conn
American Steel & Wire Co Cleveland O (309)
Barrett Div Allied Chem & Dye Corp 40 Rector NY NY (223)
Philip Carey Co Cincinnati 15 O (235)
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Chase Brass & Copper Co Waterbury
Cheney Industries Trenton 5 N J
Eagle-Picher Co Cincinnati 1 Ohio
The Flintkote Co 30 Rockefeller Plaza New York 20 N Y
Johns-Manville Corp 22 E 40th NY 16 NY (224)
LaCrosse Steel Roofing & Corrugating Co LaCrosse Wis
Lehon Co 4425 S Oakley Chgo Ill
Milcor Steel Co Milwaukee 4 Wis (319)
Mixtite Corp North Haven Conn
Nichols Wire & Steel Co Davenport Iowa (steel and aluminum) (219)
Penn Supply & Metal Corp Philadelphia Pa
Republic Steel Corp Cleveland 1 Ohio
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
Sealcon Products Inc Minneapolis 2 Minn
Servicized Products Corp 6051 W 65th St Chicago 38 Ill
The Sisalkraft Co 205 W Wacker Dr Chgo 6 Ill (237)
St Paul Corrugating Co St Paul Minn
Tennessee Coal Iron & R R Co Birmingham Ala (309)
Wasco Flashing Co Cambridge Mass (232)
Wheeling Corrugating Co Wheeling W Va (357)
Williams-Wallace Co San Francisco 7 Cal

FLASHING—wall

American Brass Co Waterbury Conn
American Steel & Wire Co Cleveland O (309)
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Chase Brass & Copper Co Waterbury 91 Conn
Cheney Industries Trenton 5 N J
Johns-Manville Corp 22 E 40th NY 16 NY (224)
LaCrosse Steel Roofing & Corrugating Co LaCrosse Wis
Mid-States Steel & Wire Co Crawfordsville Ind
Milcor Steel Co Milwaukee 4 Wis (319)
Mixtite Corp North Haven Conn
Nichols Wire & Steel Co Davenport Iowa (steel and aluminum) (219)
Republic Steel Corp Cleveland 1 Ohio
St Paul Corrugating Co St Paul Minn
The Sisalkraft Co 205 W Wacker Drive Chicago 6 Ill (237)
Tennessee Coal Iron & R R Co Birmingham Ala (309)
Wasco Flashing Co Cambridge Mass (232)
Wheeling Corrugating Co Wheeling W Va (357)

FLASHING—window

Angier Sales Corp Fremingham Mass
Cheney Industries Trenton 5 N J
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
LaCrosse Steel Roofing & Corrugating Co LaCrosse Wis
Mixtite Corp North Haven Conn
Northwest Metal Prod Inc Seattle 4 Wash
Republic Steel Corp Cleveland 1 Ohio
Richkraft Co Builders Bldg Chicago 1 Ill (250-251)
St Paul Corrugating Co St Paul Minn
The Sisalkraft Co 205 W Wacker Drive Chicago 6 Ill (237)
Williams-Wallace Co San Francisco 7 Cal

FLOOR SEALER

Acme Asbestos Covering & Flooring Co 302 N Elizabeth St Chicago 7 Ill
Adco Inc Sedalia Mo
American Floor Surfacing Machine Co Toledo 3 Ohio (208)
American Marietta Co 43 E Ohio Chgo 11 Ill

Number in parenthesis indicates page on which advertisement appears

Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Atlantic Paint & Varnish Works Wilmington N C
Berry Bros Detroit Mich
E L Bruce Co Memphis Tenn (207)
Ceresit Waterproofing Corp 512 S Canal Chicago 7 Ill
Chapman Chemical Co 333 N Michigan Av Dept A Chicago 1 Ill (66)
Elliott Paint & Varnish Co 4523 W 5th Av Chicago 24 Ill
Finnell System Inc Elkhart Ind
The Forbes Varnish Co Cleveland 11 O
Forman Ford & Co Minneapolis 1 Minn
The Foy Paint Co Inc Cincinnati 12 O
Franklin Research Co Philadelphia 31 Pa
Glidden Co Cleveland 2 Ohio
J I Holcomb Mfg Co Indianapolis 7 Ind
R M Hollingshead Corp Camden N J
Industrial Chemical Laboratories Ltd Omaha 2 Neb
Jones-Dabney Co Louisville 8 Ky
Keystone Varnish Co 71 Otsego St Brooklyn 31 N Y
Lowe Bros Co Dayton Ohio (173)
Mixtite Corp North Haven Conn
Goodloe E Moore Co Danville Ill
The O'Brien Corp South Bend 21 Ind
Penetone Co Tenafly N J
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
Sealcon Prod Inc 927 Second Av S Minneapolis 2 Minn
Seidlitz Paint & Varnish Co Kansas City 10 Mo
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Tremco Mfg Co Cleveland 4 Ohio
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
Vita-Var Corp Newark 2 N J (508)
Wadsworth Howland & Co 141 Federal Boston Mass
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass
Wood Treating Chemicals Co St Louis 10 Mo
X-Pando Corp 43-15 36th Long Island City N Y

FLOORING—hardwood and softwood (see lumber classification beginning page —)

FLUE BASES

Chattanooga Implement & Mfg Co Chattanooga 6 Tenn
Evans Pipe Co Uhrichsville Ohio
Gedge Bros Steel Roofing Co Anderson Ind
Streator Drain Tile Co Streator Ill
Wayne Agricultural Works Inc Goldsboro N C

FLUE FLANGES

Adams Co Dubuque Ia
Chattanooga Implement & Mfg Co Chattanooga 6 Tenn
Columbia Pipe Co Columbia S C
Evans Pipe Co Uhrichsville Ohio
Streator Drain Tile Co Streator Ill

FLUE LINING

Cannelton Sewer Pipe Co Inc Cannelton Ind
Chicago Fire Brick Co 1461 N Elston Chgo Ill
Clay City Pipe Co Uhrichsville Ohio
Columbia Pipe Co Columbia S C
S R Dee Bloomingdale Ind
Dennison Sewer Pipe Corp Cleveland 15 O
Denver Sewer Pipe & Clay Co Denver 1 Colo
W S Dickey Clay Mfg Co Kansas City Mo
Evans Pipe Co Uhrichsville O
Gladding-McBean & Co San Francisco Cal
Laclede-Christy Clay Prod Co St Louis Mo
Lehigh Sewer Pipe & Tile Co Fort Dodge Ia
Owensboro Sewer Pipe Co Inc Owensboro Ky
Robinson Clay Prod Co Akron O
Sealcon Products Inc Minneapolis 2 Minn
Streator Drain Tile Co Streator Ill
Universal Sewer Pipe Co Cleveland O
Washington Brick & Lime Co Spokane 8 Wash
What Cheer Clay Prod Co What Cheer Ia

FLUE RINGS

Adams Co Dubuque Ia
Chattanooga Implement & Mfg Co Chattanooga 6 Tenn
Columbia Pipe Co Columbia S C
Dennison Sewer Pipe Corp Cleveland 15 O
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Evans Pipe Co Uhrichsville Ohio
Laclede-Christy Clay Prod Co St Louis Mo
LaCrosse Steel Roofing & Corrugating Co LaCrosse Wis
Streator Drain Tile Co Streator Ill
A L Swett Iron Wks Medina N Y
Wayne Agricultural Works Inc Goldsboro N C
What Cheer Clay Products Co What Cheer Iowa

FORESTERS—consulting

W D Durland & Co 502 Masonic Bldg New Orleans La
Thos F Grayson Prescott 5 Ark
Lemieux Bros Inc New Orleans 12 La
James W. Sewall Co Old Town Maine (76)
H M Spain & Co Commerce Title Bldg Memphis Tenn

FORKS—brick handling

Hyster Co Portland 8 Ore & Peoria 1 Ill
A L Swett Iron Works Medina N Y

FREEZERS—home & farm

Admiral Corp 3800 W Cortland Chgo 47 Ill
Carrier Corp Syracuse N Y
Coolerator Co Duluth Minn
Deepfreeze Div Motor Products Corp North Chicago Ill
Frigidaire Div General Motors Corp Dayton 1 Ohio
Frostor 332 S Michigan Av Chgo Ill
General Refrigerator Corp 678 Broadway NY NY
Gibson Refrigerator Co Greenville Mich
General Electric Co Schenectady 5 N Y
Hotpoint Inc 5600 W Taylor St Chicago 44 Ill
Hussman Refrigeration Inc St Louis Mo
Ice Cooling Appliance Corp 33 S Clark Chicago 3 Ill
Masterfreeze Corp Sister Bay Wis
Nash-Kelvinator Detroit 32 Mich
Norge Div Borg-Warner Corp Detroit Mich
Refrigeration Corp of America 241 W 64th NY NY
Seeger-Sunbeam Corp St Paul 6 Minn
Sub-Zero Freezer Co Rice Lake Wis
U S-Challenge Co Batavia Ill
Westinghouse Electric Corp Mansfield O (331)
Winpower Mfg Co Newton Iowa

FUEL BRIQUETTES—wood

Wood Briquettes Inc Lewiston Idaho

FURNACES—coal

American Foundry & Furnace Co Bloomington Ill
American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
Excelsior Stove & Mfg Co Quincy Ill
Holland Furnace Co Holland Mich
Kol-Master Corp Oregon Ill
Locke Stove Co 114 W 11th St Kansas City 6 Mo
Majestic Co Huntington Ind (105)
Meyer Furnace Co Peoria Ill

FURNACES—floor

American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
The Coleman Co Inc Wichita 1 Kan
H C Little Burner Co Inc 2nd & Lincoln San Rafael Cal (263)
Payne Furnace & Supply Co Beverly Hills Cal
Portland Stove Foundry Co Portland 2 Maine
Round Oak Co Dowagiac Mich

FURNACES—gas fired

American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
Otto Bernz Co Inc Rochester 6 N Y
Chrysler Corp Airtemp Div Dayton 1 Ohio
The Coleman Co Inc Wichita 1 Kan
Des Moines Steel Furnace Co Des Moines Ia
Detroit Sheet Mtl Wks Detroit Mich
Diamond Iron Works Inc Minneapolis 11 Minn
Estate Stove Co Hamilton Ohio
Excelsior Stove & Mfg Co Quincy Ill
General Electric Co Schenectady 5 N Y
Hart Oil Burner Co Peoria Ill
Meyer Furnace Co Peoria Ill
O'Keefe & Merritt Co Los Angeles Cal
Payne Furnace & Supply Co Beverly Hills Cal
Persiro Mfg Corp Newark 5 N J
Richmond Radiator Co 835 Fifth Av NY 17 NY
Stokol Stoker Co Inc Indianapolis 7 Ind
Surface Combustion Corp Toledo 1 Ohio
The Williamson Heater Co Cincinnati 9 Ohio
Gar Wood Industries Inc Detroit 11 Mich

FURNITURE—unfinished

Wm P Curtiss & Son Richland N Y
General Wood Works Council Bluffs Ia
Indiana Willow Products Co Inc Martinsville Ind (rustic)
Lincraft Inc Burlington N J (rustic)
Teepe-Whitney Co 192 Lexington Av NY NY
Watertown Table Slide Corp Watertown Wis
Western Pine Mfg Co Ltd Spokane 7 Wash

FUSE BOXES

Frank Adam Electric Co St Louis Mo
Cole Elec Prod Co 43-06 Crescent Long Island City N Y
Electrical Engineers Equip Co Melrose Park Ill
Leonard Elec Mfg Co Cleveland O
Wm Wurdack Elec Mfg Co St Louis Mo

FUSES

Bussmann Mfg Co St Louis Mo
Chase-Shawmut Co Newburyport Mass
Commercial Enclosed Fuse Co Hoboken N J
Eagle Electric Mfg Co Inc 23-10 Bridge Plaza So Long Island City 1 N Y
Economy Fuse & Mfg Co 2717 N Greenview Chgo Ill
Jefferson Elec Co Bellwood Ill
Kirkman Eng Corp 121 6th NY NY
Metropolitan Elec Mfg Co 22-50 Steinway Long Island City N Y
Royal Elec Co Inc Pawtucket R I
Star Fuse Co Inc 235 Canal NY NY
Trico Fuse Mfg Co Milwaukee Wis
Westinghouse Electric Corp Pittsburgh 30 Pa (331)

GARAGE DOOR OPERATORS — automatic

Barber-Colman Co Rockford Ill
Electronic Serviceman 19720 W Eight Mile Road Detroit 19 Mich (336)
Horton Mfg Div The Aviation Corp Circleville O
Richards-Wilcox Mfg Co Aurora Ill
Rowe Mfg Co Galesburg Ill
Wagner Mfg Co Cedar Falls Iowa

GARBAGE RECEPTACLES

Adams Co Dubuque Ia
Geo W Diener Mfg Co 406 N Monticello Av Chgo 24 Ill
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Gabriel Steel Co Detroit Mich
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Lynn Iron Fdry Inc Lynn Mass
The Majestic Co Huntington Ind (105)
Northwest Metal Products Inc Seattle 4 Wash
Sanitary Receiver Co Dunkirk N Y
Sexton Can Co Everett Mass
Wheeling Corrugating Co Wheeling W Va (357)

GATES—farm

American Steel & Wire Co Cleveland O (309)
Bethlehem Steel Co Bethlehem Pa
Clay Equipment Corp Cedar Falls Ia
Colorado Fuel & Iron Corp Denver 1 Colo
Continental Steel Corp Kokomo Ind (313)
The Davis & Siehl Co Cincinnati 23 O
Franklin Equipment Co Monticello Ia
Hicks Gate Co Fredericktown O
Keystone Steel & Wire Co Peoria Ill
Mid-States Steel & Wire Co Crawfordsville Ind

Number in parenthesis indicates page on which advertisement appears

Nichols Wire & Steel Co Davenport Iowa (219)
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh Pa
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
Rowe Mfg Co Galesburg Ill
Sheffield Steel Corp Kansas City Mo
Standard Mfg Co Cedar Falls Ia
U S-Challenge Co Batavia Ill
Weyerhaeuser Sales Co St Paul Minn 34-35

GATES—industrial & residential

American Chain Link Fence Co Medford Mass
American Steel & Wire Co Cleveland O (309)
Cincinnati Iron Fence Co Inc Cincinnati 6 Ohio
Colorado Fuel & Iron Corp Denver 1 Colo
Continental Steel Corp Kokomo Ind (313)
Cyclone Fence Div American Steel & Wire Co P O Box 260 Waukegan 1 Ill
Keystone Steel & Wire Co Peoria Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Northwestern Steel & Wire Co Sterling Ill
Page Steel & Wire Div American Chain & Cable Co Inc Monessen Pa
Pittsburgh Steel Co Pittsburgh Pa
Redwood Garden Materials Co Los Angeles 21 Calif
F P Smith Wire & Iron Works Inc 2346 N Clybourn Av Chicago 14 Ill
Stewart Iron Wks Co Inc Cincinnati O

GAUGES

The Bristol Co Waterbury 91 Conn
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Jas P Marsh Corp 2073 N Southport Av Chicago 14 Ill
National Airoil Burner Co Philadelphia 34 Pa
Penberthy Injector Co Detroit 2 Mich

GENERATING SETS—steam, electric

Allis Chalmers Mfg Co Milwaukee Wis (398)
Buda Co Harvey Ill
Construction Machinery Co Waterloo Iowa
Diehl Mfg Co 1124 Finderne Av Somerville N J
Fairbanks Morse & Co 600 S Michigan Chgo Ill
The Filer & Stowell Co Milwaukee 7 Wis
General Electric Co Schenectady 5 N Y
The Ready-Power Co 3820 Grand River Av Detroit Mich (electric)
Westinghouse Electric Corp 306 Fourth Av Pittsburgh 30 Pa (331)
Witte Engine Works Div of Oil Well Supply Co Kansas City 3 Mo (electric)

GLASS—ornamental

Semon Bache & Co 636 Greenwich New York 14 N Y
Conrey-Prugh Glass Co Pittsburgh Pa
Dearborn Glass Co 2414 W 21st Chicago 8 Ill
Libbey-Owens-Ford Glass Co Toledo O (155-158)
The Nurre Cos Inc Bloomington Ind
Pennsylvania Wire Glass Co Philadelphia 3 Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Royal Glass Works Corp 50-20 25th Long Island City 1 N Y

GLASS—plate

Semon Bache & Co 636 Greenwich New York 14 N Y
Dearborn Glass Co 2414 W 21st St Chicago 8 Ill
Libbey-Owens-Ford Glass Co Toledo O (155-158)
Mississippi Glass Co 200 5th Av NY 10 NY
National Mirror Works Rockford Ill
The Nurre Cos Inc Bloomington Ind
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Royal Glass Works Corp 50-20 25th Long Island City 1 N Y

GLASS—structural

Semon Bache & Co 636 Greenwich New York 14 N Y
Conrey-Prugh Glass Co Pittsburgh Pa
Libbey-Owens-Ford Glass Co Toledo O (155-158)
Marietta Mfg Co Indianapolis Ind
Mississippi Glass Co 200 5th Av NY 10 NY
National Mirror Works Rockford Ill
The Nurre Cos Inc Bloomington Ind
Pennsylvania Wire Glass Co Philadelphia 3 Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Royal Glass Wks Corp 50-20 25th Long Island City N Y

GLASS—window

American Glass Co Detroit Mich
American Window Glass Co Pittsburgh Pa
Semon Bache & Co 636 Greenwich NY NY
Conroy-Prugh Glass Co Pittsburgh Pa
Dearborn Glass Co 2414 W 21st Chgo 8 Ill
Fourco Glass Co Clarksburg W Va
Harding Glass Co Fort Smith Ark
L J Houze Convex Glass Co Point Marion Pa
Johnston Glass Co Hartford City Ind
Libbey-Owens-Ford Glass Co Toledo O (155-158)
National Mirror Works Rockford Ill
The Nurre Cos Inc Bloomington Ind
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Royal Glass Wks Corp 50-20 25th St Long Island City 1 N Y
Safetee Glass Co Philadelphia Pa

GLASS—window, wire

Semon Bache & Co 636 Greenwich New York 14 N Y
Conrey-Prugh Glass Co Pittsburgh Pa
Dearborn Glass Co 2414 W 21st Chgo Ill
Libbey-Owens-Ford Glass Co Toledo O (155-158)
Mississippi Wire Glass Co 220 Fifth Av NY NY
National Mirror Works Rockford Ill
Pennsylvania Wire Glass Co Philadelphia Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Royal Glass Works Corp 50-20 25th Long Island City 1 N Y

GLASS BLOCK

Owens-Illinois Glass Co Toledo Ohio
Pittsburgh Corning Corp Pittsburgh 22 Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Royal Glass Works Corp 50-20 25th Long Island City 1 N Y

GLASS CUTTING BOARDS

Glaziers Tool Mfg Co 611 W Adams Chgo Ill
W C Heller & Co 539 N Clark St Montpelier Ohio
Lufkin Rule Co Saginaw Mich
Red Devil Tools Irvington 11 N J (288)
Warner Mfg Co 801 16th Av SE Minneapolis 14 Minn

GLAZING COMPOUND

Armstrong Co 4065 S La Salle Chgo 9 Ill (161)
Biddle Co St Louis Mo (164)
Blue Ridge Talc Co Inc Henry Va
Briggs Maroney Co Inc Everett 49 Mass
Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
Fort Pitt Chem Co Pittsburgh 22 Pa
A C Horn Co 43-42 Tenth St Long Is-
Landen Putty Works Malden 48 Mass (139-164)
Macklanburg - Duncan Co Oklahoma City 1 Okla (297)
Mar-Kay Mfg Co 2715 S Second St St Louis Mo
Ira Parker & Sons Co Oshkosh Wis (76)
Pennsylvania Salt Mfg Co Philadelphia 7 Pa
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (151)
Plastic Prod Co 6475 Georgia Av Detroit 11 Mich
Presstite Engineering Co St Louis 10 Mo
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
The Tremco Mfg Co Cleveland 4 Ohio
X-Pando Corp Long Island City NY

GLAZING—transparent plastic

Arvey Corp 3470 N Kimball Chicago 18 Ill (164)
Celanese Plastics Corp 180 Madison Av New York 16 N Y
The Dobeckmun Co Cleveland 1 Ohio (163)
E I duPont de Nemours & Co Inc Wilmington Del
Flex-O-Glass Mfg Co 1100 N Cicero Av Chicago 51 Ill (2)
The Richkraft Co Builders Bldg Chicago 1 Ill (250-251)
Sol-O-Lite Mfg Co 4301 West North Av Chgo Ill (146)
Warp Bros 1100 N Cicero Av Chicago 51 Ill (2)

GLOVES—industrial

Broadway Rubber Mfg Co 529 E Broadway Louisville 2 Ky
Industrial Glove Co Danville Ill
The B F Goodrich Co Akron Ohio
Marso & Rodenborn Mfg Co Fort Dodge Iowa
Olympic Glove Co 97 Madison Av NY NY
Peerless Glove Co Grand Haven Mich
Pioneer Rubber Co Willard O
Seiberling Latex Prod Co Barberton O
Spartan Glove Co Dayton O

GLUE—animal

Armour Glue Works 1355 W 31st St Chicago 9 Ill
The Commercial Paste Co Columbus 8 Ohio
Consumers Glue Co St Louis Mo
Peter Cooper Corp Gowanda N Y
Franklin Glue Co Columbus 15 Ohio (184)
H B Fuller Co 255 Eagle St Paul 2 Minn
C B Hewitt & Bros Inc 23 Green NY 13 NY
Keystone Glue Co Williamsport Pa
Le Page's Inc Gloucester Mass
Madison Glue Corp 53 Park Place New York 7 N Y
National Adhesives 268 Madison Av New York 16 N Y
Paisley Prod Inc 1770 Canalport Av Chgo 16 Ill
Standard Paste & Glue Co 3620 W 38th St Chicago Ill

GLUE—animal hide

Armour Glue Works 1355 W 31st St Chicago 9 Ill
The Commercial Paste Co Columbus 8 Ohio
Peter Cooper Corp Gowanda N Y
Franklin Glue Co Columbus 15 Ohio (184)
H B Fuller Co 255 Eagle St Paul 2 Minn
C B Hewitt & Bros Inc 23 Green NY 13 NY
Keystone Glue Co Williamsport Pa
Le Page's Inc Gloucester Mass
Madison Glue Corp 53 Park Pl NY 7 NY
Paisley Products Inc 1770 Canalport Av Chicago 16 Ill
Standard Paste & Glue Co 3620 W 38th St Chicago Ill

GLUE—casein

American Cyanamid & Chemical Corp 30 Rockefeller Plaza New York 20 N Y
Casein Co of America 350 Madison Av NY NY (181)
Consumers Glue Co St Louis 6 Mo
Franklin Glue Co Columbus 15 Ohio (184)
H B Fuller Co 255 Eagle St Paul 2 Minn
C B Hewitt & Bros Inc 23 Green NY 13 NY
Lacton Glue Mfg Co 611 Broadway NY NY
Le Page's Inc Gloucester Mass
Monite Waterproof Glue Co Minneapolis Minn
Monsanto Chemical Co 1700 S Second St Louis 4 Mo

Number in parenthesis indicates page on which advertisement appears

National Adhesives 268 Madison Av New York 16 N Y
National Casein Sales 601 W 80th Chgo 20 Ill
Paisley Products Inc 1770 Canalport Av Chicago 16 Ill
Perkins Glue Co Lansdale Pa
So-Lo Works Inc Loveland Ohio
United States Plywood Corp 55 W 44th St New York 18 N Y (179)

GLUE—cold water

Casein Co of America 350 Madison Av NY 17 NY (181)
The Commercial Paste Co Columbus 8 Ohio
Consumers Glue Co St Louis 6 Mo
Franklin Glue Co Columbus 15 Ohio (184)
H B Fuller Co 255 Eagle St Paul 2 Minn
C B Hewitt & Bros Inc 23 Green NY 13 NY
Le Page's Inc Gloucester Mass
Monite Waterproof Glue Co Minneapolis Minn
Monsanto Chemical Co 1700 S Second St Louis 4 Mo
National Adhesives 268 Madison Av New York 16 N Y
National Casein Sales 601 W 80th Chgo 20 Ill
Paisley Prod Inc 1770 S Canalport Chgo Ill
Perkins Glue Co Lansdale Pa
Reliable Paste Co 3560 Shields Av Chicago Ill
So-Lo Works Inc Loveland Ohio
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
United States Plywood Corp 55 W 44th St New York 18 N Y (179)

GLUE—fish

L B Allen Co Inc 6722 Bryn Mawr Av Chgo Ill
The Commercial Paste Co Columbus 8 Ohio
Consumers Glue Co St Louis 6 Mo
Crescent Products Co Terre Haute Ind
H B Fuller Co 255 Eagle St Paul 2 Minn
C B Hewitt & Bros Inc 23 Green NY 13 NY
Le Page's Inc Gloucester Mass
Paisley Products Inc 1770 S Canalport Chgo Ill
Standard Paste & Glue Co 3620 W 38th Chgo Ill
Williamson Adhesives Inc 2327 W 18th Chgo Ill

GLUE—resin

Casein Co of America 350 Madison Av NY NY (181)
Davis Plywood Corp Cleveland 11 Ohio
Durite Plastics Inc 5000 Summerdale Av Philadelphia 24 Pa
Franklin Glue Co Columbus 15 Ohio (184)
H B Fuller Co 255 Eagle St Paul 2 Minn
C B Hewitt & Bros Inc 23 Green NY 13 NY
Le Page's Inc Gloucester Mass
Monite Waterproof Glue Co Minneapolis 11 Minn
Monsanto Chemical Co 1700 S Second St Louis 4 Mo
National Adhesives 268 Madison Av New York 16 N Y
National Casein Sales 601 W 80th Chgo 20 Ill
Paisley Products Inc 1770 Canalport Av Chicago 16 Ill
Perkins Glue Co Lansdale Pa
Resinous Prod & Chem Co Inc Philadelphia Pa
So-Lo Works Inc Loveland Ohio
Standard Paste & Glue Co 3620 W 38th St Chicago Ill
U S Plywood Corp 55 W 44th NY 18 NY (179)

GLUE—waterproof

The Commercial Paste Co Columbus 8 Ohio
Consumers Glue Co St Louis 6 Mo
Casein Co of America 350 Madison Av NY 17 NY (181)
H B Fuller Co 255 Eagle St Paul 2 Minn
Franklin Glue Co Columbus 15 Ohio (184)
C B Hewitt & Bros Inc 23 Green NY 13 NY
I F Laucks Inc 911 Western Av Seattle 4 Wash
Le Page's Inc Gloucester Mass
Monite Waterproof Glue Co Minneapolis Minn
Monsanto Chemical Co 1700 S Second St Louis 4 Mo
Goodloe E Moore Co Danville Ill
Paisley Prod Inc 1770 Canalport Av Chgo 16 Ill
Perkins Glue Co Lansdale Pa
Resinous Prod & Chem Co Inc Philadelphia Pa
So-Lo Works Inc Loveland Ohio
Standard Paste & Glue Co 3620 W 38th St Chicago Ill
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
United States Plywood Corp 55 West 44th NY 18 NY (179)
Williamson Adhesives Inc 2327 W 18th Chgo Ill

GLUE POTS

Aeroil Products Co West New York N J
Black Bros Co Inc Mendota Ill
Black & Decker Mfg Co Towson 4 Md
Chas E Francis Co Rushville Ind
General Electric Co Schenectady 5 N Y
Sta-Warm Electric Co Ravenna O
A H Waage Electric Co 54 Park Place New York 7 N Y
The Wellman Products Co Cleveland 3 Ohio

GLUE SPREADERS

Black Bros Co Inc Mendota Ill
Chas R Francis Co Rushville Ind
Monite Waterproof Glue Co Minneapolis 11 Min
Oliver Machinery Co Grand Rapids 2 Mich
Perkins Glue Co Lansdale Pa

GRATES—area

Adams Co Dubuque Ia
Cincinnati Iron Fence Co Cincinnati 6 O
Cleveland Steel Specialty Co Cleveland 5 Ohio
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Logan Co Inc Louisville 6 Ky
Geo L Mesker Steel Corp Evansville 8 Ind
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
F P Smith Wire & Iron Works Inc 2346 N Clybourn Av Chicago 14 Ill
A L Swett Iron Works Medina N Y

GRATES—boiler

Adams Co Dubuque Ia
Corinth Machinery Co Corinth Miss (388)
The Filer & Stowell Co Milwaukee 7 Wis
Marion Machine Foundry & Supply Co Marion Ind
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Waterbury Foundry Co Waterbury 13 Conn

GRILLES—metal

Logan Co Inc Louisville 6 Ky (iron and steel)
Newman Bros Inc Cincinnati 3 Ohio (bronze, aluminum, stainless steel)

GRILLES—outdoor cooking

The Adams Co Dubuque Iowa
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Hancock Iron Wks Pontiac 14 Mich
Majestic Co Huntington Ind (105)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Starr Bros Bell Co East Hampton Conn
Stewart Iron Wks Co Inc Cincinnati O
Tara Mfg Co 2520 S Archer Ave Chgo 8

GRILLES—radiator

American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
Auer Register Co Cleveland O
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Southern Wire & Iron Works Atlanta Ga
Stewart Iron Wks Co Inc Cincinnati O
United States Radiator Corp Detroit Mich
United States Register Co Battle Creek Mich

GRILLES—screen door

W J Dennis & Co 1732 N Kolmar Av Chicago 39 Ill
Flour City Ornamental Iron Co Minneapolis Minn
Logan Co Inc Louisville Ky
Macklanburg - Duncan Co Oklahoma City 1 Okla (297)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
Southern Wire & Iron Wks 441 Memorial Dr S E Atlanta Ga

GRINDERS—band wheel

The Filer & Stowell Co Milwaukee 7 Wis
Hanchett Mfg Co Big Rapids Mich
Porter Cable Mach Co Syracuse 8 NY
Prescott Co Menominee Mich

GRINDERS—bench & floor

Baldor Electric Co St Louis Mo
Black & Decker Mfg Co Towson 4 Md
Champion Blower & Forge Co Lancaster Pa
Chicago Pneumatic Tool Co 6 E 44th St New York 17 N Y
Cincinnati Electrical Tool Co Cincinnati O
James Clark Jr Electric Co Inc Louisville 3 Ky
Diehl Mfg Co 1124 Finderne Av Somerville N J
Hanchett Mfg Co Big Rapids Mich
Independent Pneumatic Tool Co 600 W Jackson Chgo 6 Ill
Ingersoll-Rand Co 11 Broadway New York 4 N Y
Kingston-Conley Electric Co North Plainfield N J
Luther Grinder & Tool Co Sheboygan Wis
Mall Tool Co 7733 South Chicago Av Chgo Ill (283)
Millers Falls Co Greenfield Mass
Milwaukee Electric Tool Corp Milwaukee 2 Wis
Porter Cable Mach Co Syracuse 8 NY
Schauer Machine Co Cincinnati O
Skilsaw Inc 5033 N Elston Av Chgo Ill
Speedway Mfg Co 1834 S 52nd Av Cicero Ill
The Standard Electrical Tool Co Cincinnati 4 Ohio
Stanley Electric Tools 111 Elm New Britain Conn (272)
U S Electrical Tool Co Cincinnati 14 O
Vonnegut Moulder Corp Indianapolis Ind
Walker-Turner Co Inc Plainfield N J
S A Woods Machine Co Boston 27 Mass

GRINDERS—cutter head

C K L Machinery Co Oshkosh Wis
Dependable Machine Co Greensboro N C
Hermance Machine Co Williamsport 19 Pa
Stetson-Ross Mach Co Seattle 4 Wash
Samuel J Shimer & Sons Inc Milton Pa (406)
S A Woods Machine Co Boston 27 Mass

GRINDERS—electric portable

Black & Decker Mfg Co Towson 4 Md
Chicago Pneumatic Tool Co 6 E 44th St New York 17 N Y
Chicago Wheel & Mfg Co 1101 W Monroe Chgo Ill
James Clark Jr Electric Co Inc Louisville 3 Ky
Dremel Mfg Co Racine Wis
Independent Pneumatic Tool Co 600 W Jackson Chgo 6 Ill
Mall Tool Co 7733 South Chicago Av Chgo Ill (283)
Millers Falls Co Greenfield Mass
Milwaukee Electric Tool Corp Milwaukee 2 Wis
Porter Cable Mach Co Syracuse 8 NY
Pratt & Whitney West Hartford Conn
Reynolds Electric Co 2650 W Congress Chgo 12 Ill
Skilsaw Inc 5033 N Elston Av Chgo Ill
Speedway Mfg Co 1834 S 52nd Av Cicero Ill
Stanley Electric Tools 111 Elm New Britain Conn (272)
U S Elec Tool Co Cincinnati O

GRINDERS—knife

E C Atkins & Co Indianapolis 9 Ind
Bay State Abrasive Products Co Westboro Mass
Boice Crane Co Toledo 6 Ohio
Hanchett Mfg Co Big Rapids Mich
U S Electrical Tool Co Cincinnati 14 Ohio
S A Woods Machine Co Boston 27 Mass
Yates-American Machine Co Beloit Wis

Number in parenthesis indicates page on which advertisement appears

GRINDERS—oil stone

Bay State Abrasive Products Co Westboro Mass
Carborundum Co Niagara Falls NY
Oliver Machinery Co Grand Rapids 2 Mich

GRINDING COMPOUND

E C Atkins & Co Indianapolis 9 Ind
Carborundum Co Niagara Falls N Y
Clover Mfg Co Norwalk Conn
Wayne Chemical Products Co Detroit Mich
Zip Abrasive Co Cleveland O

GRINDING WHEELS

Abrasive Products Inc South Braintree Mass
American Emery Wheel Wks Providence 1 R I
Bay State Abrasive Products Co Westboro Mass
Behr-Manning Corp Troy N Y
Bridgeport Safety Emery Wheel Co Bridgeport Conn
Carborundum Co Niagara Falls N Y
Chicago Wheel & Mfg Co 1101 W Monroe Chgo Ill
Clover Mfg Co Norwalk Conn
Cortland Grinding Wheels Corp Chester Mass
Goodrich Grinding Wheel Co 1500 W Madison Chgo Ill
Luther Grinder & Tool Co Sheboygan Wis
Macklin Co Jackson Mich
Mall Tool 7733 South Chicago Av Chgo Ill (283)
Mid-West Abrasive Co Detroit Mich
Norton Co Worcester 6 Mass
Raybestos-Manhattan Inc Manhattan Rubber Div Passaic N J
Safety Grinding Wheel & Machine Co Springfield O
Simonds Abrasive Co Tacony & Fraley Philadelphia 37 Pa
Skilsaw Inc 5033 N Elston Av Chicago 30 Ill
The Sterling Grinding Wheel Div of The Cleveland Quarries Co Tiffin O
Sterling Tool Products Co 363 E Ohio St Chicago Ill
Vitrified Wheel Co Westfield Mass
Wisconsin Abrasive Co Milwaukee Wis

GROOVERS

Anson Whitney Mach Co Hartford Conn
E C Atkins & Co Indianapolis 9 Ind
Ekstrom, Carlson & Coe Rockford Ill
Huther Bros Saw Mfg Co Inc Rochester 7 NY
Macklanburg - Duncan Co Oklahoma City 1 Okla (297)
Skilsaw Inc 5033 N Elston Ave Chgo Ill
Timber Engineering Co 1319 Eighteenth St N W Washington 6 D C
Timber Structures Inc Portland 8 Ore

GUMMERS—saw

W T Adams Mach Co Corinth Miss
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
The Filer & Stowell Co Milwaukee 7 Wis
Foley Mfg Co Minneapolis Minn
Hanchett Mfg Co Big Rapids Mich
Norton Co Worcester 6 Mass
Prescott Co Menominee Mich
Samuel C. Rogers & Co Buffalo N Y

GUNS—caulking

The Biddle Co St Louis 2 Mo (164)
Calbar Paint & Varnish Co 2612 N Martha Phil 25 Pa
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
A C Horn Co 43-42 Tenth St Long Island City N Y
Kenmar Mfg Co Philadelphia 25 Pa
Landen Putty Works Malden 48 Mass (139-164)
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Pecora Paint Co Inc Philadelphia Pa
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
L Sonneborn Sons Inc 88 Lexington Av New York 16 N Y (182)
Sterling Paint & Varnish Co Malden 48 Mass
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
W F Webster Cement Co Cambridge 41 Mass

GUTTERS—wood

Aloha Lumber Co Aloha Wash
Dolbeer & Carson Lbr Co San Francisco Cal
Hammond Lumber Co 417 Montgomery San Fran Cal
Holmes-Eureka Lbr Co San Francisco Cal
Wm Hulbert Mill Co Everett Wash
Long Fir Gutter Co Cadiz O
Mutual Fir Column Co Tacoma Wash
Union Lbr Co San Francisco Cal
Washington Mfg Co Tacoma 1 Wash
Weyerhaeuser Sales Co St Paul Minn (34-35)

GYPSUM PRECAST SLABS

Certain-teed Prod Corp 120 S La Salle Chgo 3 Ill (215)
United States Gypsum Co 300 W Adams Chgo Ill

HAMMERS—claw, carpenter, etc.

American Fork & Hoe Co Cleveland O
Billings & Spencer Co Hartford Conn
Champion-De Arment Tool Co Meadville Pa
C Drew & Co Kingston Mass
Fairmont Tool & Forging Co 10611 Quincy Av Cleveland Ohio
John H Graham & Co Inc 105 Duane New York 8 N Y
Heller Bros Co Newark N J
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Marion Tool Corp Marion Ind
David Maydole Tool Corp Norwich N Y
Mayhew Steel Products Inc Shelburne Falls Mass
Mephisto Tool Co Inc Hudson NY
Ox-Wall Tool Co 928 Broadway New York 10 N Y
Peck Stow & Wilcox Co Southington Conn
Phoenix Hdwe Mfg Co Buffalo N Y
Fayette R Plumb Inc Philadelphia 37 Pa
The Stanley Works New Britain Conn (272)
Vaughan & Bushnell Mfg Co 135 S La Salle Chgo Ill

HAMMERS—portable electric

Black & Decker Mfg Co Towson 4 Md
Chicago Pneumatic Tool Co 6 E 44th NY NY
Independent Pneumatic Tool Co 600 W Jackson Chgo 6 Ill
Millers Falls Co Greenfield Mass
Milwaukee Electric Tool Corp Milwaukee Wis
Stanley Electric Tools 111 Elm New Britain Conn (272)
Syntron Co Homer City Pa
Wodack Electric Tool Corp 4627 W Huron Chgo Ill

HAMMERS—saw setting

American Fork & Hoe Co Cleveland O
E C Atkins & Co Indianapolis Ind
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Vaughan & Bushnell Mfg Co 135 S La Salle Chgo Ill

HANDLES—broom & mop

W F Brown & Son Inc Denham Springs La
R F Cooke Mfg Co Orange Mass
Himmelberger-Harrison Mfg Co Cape Girardeau Mo
Holt Hardwood Co Oconto Wis (208)
G F League Lumber Co Box 125 Greenville S C
Meyer Handle & Veneer Co Magazine Ala
McMinnville Handle Co McMinnville Tenn
Northwoods Mfg Co Manistique Mich
Norton Mfg Co Memphis Tenn
Prouty Lbr & Box Co Warrenton Ore
Robinson Wood Turning Co Burlington Vt
St Helens Wood Products Co St Helens Ore
Southeast Portland Lumber Co Portland Ore
Temple-White Co Diboll Tex
Washington Handle Co Tacoma Wash
White Wood Products Co Inc Bogalusa La

HANDLES—carpenter tool

E C Atkins & Co Indianapolis 9 Ind
R F Cooke Mfg Co Orange Mass
Englewood Dowel Co Inc Merchandise Mart Chgo 54 Ill
E B Estes & Sons Inc 155 E 44th NY NY
Greenslate Mfg Co Rich Hill Mo
S A Healy's Sons West Chesterfield Mass
Marion Handle Mills Inc Marion Va
H A Stiles & Co Boston 14 Mass
L W Strock & Co Bethlehem Pa

HANGERS—joist & timber

Adams Co Dubuque Ia
Cleveland Lock Works Cleveland 14 O (145)
Cleveland Steel Spec Corp Cleveland O
Copco Steel & Engineering Co Detroit 27 Mich
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Duplex Hanger Co Cleveland Ohio
Gabriel Steel Co Detroit 12 Mich
Ideal Hanger Co 1272 E 53rd Cleveland 14 Ohio (105)
Kelly Steel Works Inc 5767 W 65th Chgo 38 Ill
McDougall & Potter Co Rider Av & 141st NY NY
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Richmond Screw Anchor Co Inc 816 Liberty Av Brooklyn 8 N Y
St Paul Foundry & Mfg Co St Paul 3 Minn
Wagner Mfg Co Cedar Falls Iowa (studding sockets)

HANGERS—pipe & cabinet

Carpenter & Paterson Inc 1190 Bennington East Boston 28 Mass
Crawford Co 3220 W 31st Chgo Ill
Fee & Mason Mfg Co 81 Beekman NY NY
Ford & Kendig Co Phil Pa
Gedge Bros Steel Roofing Co Anderson Ind
Grabler Mfg Co Cleveland O
Grinnell Co Providence R I
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Illinois Malleable Iron Co 1801 Diversey Pkwy Chgo Ill
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Paine Co 2951 Carroll Av Chgo 12 Ill
Signode Steel Strapping Co 2635 N Western Av Chgo Ill
Walworth Co 60 E 42nd NY NY

HANGERS & TRACK—door

Allith-Prouty Inc Danville Ill
Clay Equipment Corp Cedar Falls Iowa
Franklin Equipment Co Monticello Ia
Frantz Mfg Co Sterling Ill (298)
Lawrence Bros Sterling Ill
McKinney Mfg Co Pittsburgh Pa
National Mfg Co Sterling Ill
Olson Mfg Co Albert Lea Minn
Richards-Wilcox Mfg Co Aurora Ill
Sharon Hardware Mfg Co Sharon Pa
The Stanley Works New Britain Conn (272)
Starline Inc Harvard Ill
Wagner Mfg Co Cedar Falls Ia
Western Products Inc New Castle Ind

HARDWARE—awning window

Gate City Sash & Door Co Fort Lauderdale Fla (112-113)

HARDWARE—bin swing

Ritsche Specialty Mfg Co St Cloud Minn (300)

HARDWARE—cabinet

American Cabinet Hdwe Corp Rockford Ill (285)
Barrows Lock Works North Chicago Ill (301)
Best Universal Lock Co Indianapolis 4 Ind
Chase Brass & Copper Co Waterbury 91 Conn
P & F Corbin New Britain Conn
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
L F Grammes & Sons Inc 396 Union Allentown Pa
H S Getty & Co Inc Phil Pa
Knape & Vogt Mfg Co Grand Rapids 4 Mich
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
McKinney Mfg Co Pittsburgh Pa
Nat'l Brass Co Grand Rapids 2 Mich
Natl Lock Co Rockford Ill (293)

Number in parenthesis indicates page on which advertisement appears

Pacific Plastic & Mfg Co Inc Los Angeles 16 Calif
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Phoenix Lock Co Newark 7 N J
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sargent & Co New Haven 9 Conn (295)
Sharon Hdwe Mfg Co Sharon Pa
Shelby Spring Hinge Co Shelby Ohio
Slaymaker Lock Co Lancaster Pa
The Stanley Works New Britain Conn (272)
Technical Glass Co Inc Los Angeles 11 Calif
Yale & Towne Mfg Co Stamford Conn (269)

HARDWARE—casement

American Cabinet Hardware Corp Rockford Ill (285)
Austin & Eddy Inc P O Box 1504 Boston 4 Mass
Barrows Lock Works North Chicago Ill (301)
Casement Hdwe Co 404 N Wood Chgo
J Chesler & Sons 41 Varick Av Brooklyn 6 N Y
P & F Corbin New Britain Conn
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
Grant Pulley & Hdwe Co 33-36 57th Woodside L I N Y
Griffin Mfg Co Erie Pa
Lafayette Metal Products Co Oakland Calif
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
McKinney Mfg Co Pittsburgh 12 Pa
National Brass Co Grand Rapids Mich
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn Hardware Co Reading Pa
Russell & Erwin Div The American Hdw Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works Div of the Yale & Towne Mfg Co North Chicago Ill
Sargent & Co New Haven Conn (295)
Sharon Hdwe Mfg Co Sharon Pa
Shelby Spring Hinge Co Shelby O
Slaymaker Lock Co Lancaster Pa
Sterling Hdwe Mfg Co 2341 Nelson St Chicago 18 Ill
Vincent Whitney Co 130 10th St San Francisco 3 Calif
Wright Products Co St Paul Park Minn
Yale & Towne Mfg Co Stamford Conn (269)

HARDWARE—clothes closet

Best Universal Lock Co Indianapolis 4 Ind
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Knape & Vogt Mfg Co Grand Rapids 4 Mich
McKinney Mfg Co Pittsburgh 12 Pa
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Russell & Erwin Div The American Hdw Corp New Britain Conn
Duncan Shaw Corp 33 W 42nd St New York 18 N Y
Slaymaker Lock Co Lancaster Pa
The Stanley Works New Britain Conn (272)

HARDWARE—concrete forms

Jeschke Wire & Specialty Co Crawfordsville Ind
M & M Wire Clamp Co 983-17th Av S E Minneapolis 14 Minn
Star Expansion Bolt Co 147 Cedar St New York 6 N Y
Williams Form Eng Corp Grand Rapids 7 Mich

HARDWARE—garage, overhead type

Allith-Prouty Inc Danville Ill
Barber-Colman Co Rockford Ill
Clay Equipment Corp Cedar Falls Iowa
Colorado Fuel & Iron Corp Denver 1 Colo
Franz Mfg Co Sterling Ill (298)
Holmes Mfg Co Los Angeles Cal
R H Osborne Co Los Angeles 12 Calif
Phenix Mfg Co Milwaukee Wis
Richards-Wilcox Mfg Co Aurora Ill
The Stanley Works New Britain Conn (272)
Starline Inc Harvard Ill
Sterling Hardware Mfg Co 2341 W Nelson Chicago 18 Ill
Tavart Co Ltd Los Angeles 13 Cal (302)
Wagner Mfg Co Cedar Falls Iowa
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y

HARDWARE—knives, roofing & insulation

Modern Specialties Co 4140 W Harrison St Chicago 24 Ill (200)

HARDWARE—plastic, handles & knobs only

American Cabinet Hardware Corp Rockford Ill (285)
Champion Hdwe Co Geneva O
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Imperial Molded Prod Corp Chgo 12 Ill
Modern Plastic Co Los Angeles 11 Calif
Pacific Plastic & Mfg Co Inc Los Angeles 16 Calif
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Slaymaker Lock Co Lancaster Pa
Superior Plastic Co 426 N Oakley Chicago Ill
Technical Glass Co Los Angeles 11 Calif
Yale & Towne Mfg Co Stamford Conn (269)

HARDWARE—sliding door residence

Knape & Vogt Mfg Co Grand Rapids 4 Mich
Jay G McKenna Inc Elkhart Ind (track) (304)
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (locks) (291)

HARDWARE—sliding, folding garage

Allith-Prouty Inc Danville Ill
Barrows Lock Works North Chicago Ill (301)
Eberhard Mfg Co Div Eastern Malleable Iron Co Cleveland 4 Ohio
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
Lanebro Mfg Co Inc Poughkeepsie N Y
Lawrence Bros Sterling Ill
Macklanburg - Duncan Co Oklahoma City 1 Okla (297)
McKinney Mfg Co Pittsburgh Pa
National Mfg Co Sterling Ill
Richards-Wilcox Mfg Co Aurora Ill
Sager Lock Works North Chicago Ill
Sharon Hdwe Mfg Co Sharon Pa
The Stanley Works New Britain Conn (272)
Starline Inc Harvard Ill
Wagner Mfg Co Cedar Falls Ia

HARDWARE—storm sash & screen

American Cabinet Hardware Corp Rockford Ill (285)
Austin & Eddy Inc P O Box 1504 Boston 4 Mass
Barrows Lock Works North Chicago Ill. (301)
Champion Hdwe Co Geneva O
W J Dennis & Co 1732 N Kolmar Av Chgo 39 Ill
Frantz Mfg Co Sterling Ill (298)
F D Kees Mfg Co Beatrice Neb
King-Chippewa Co St Louis 4 Mo
Lockwood Hardware Mfg Co Fitchburg Mass (270)
McKinney Mfg Co Pittsburgh 12 Pa
National Lock Co Rockford Ill (293)
National Mfg Co Sterling Ill
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sharon Hdwe Mfg Co Sharon Pa
Shelby Spring Hinge Co Shelby Ohio
Slaymaker Lock Co Lancaster Pa
Sterling Hardware Mfg Co 2341 W Nelson Chgo 18 Ill
Superior Fastener Corp 2949 N Elston Av Chicago 18 Ill
Wagner Mfg Co Cedar Falls Iowa
Wayne Mfg Co Detroit 10 Mich
Wright Products Co St Paul Park Minn
Yale & Towne Mfg Co Stamford Conn (269)

HASPS—hinge

Champion Hdwe Co Geneva O
Eberhard Mfg Co Div Eastern Malleable Iron Co Cleveland 4 Ohio
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Il (298)
H S Getty & Co Inc Phil Pa
L F Grammes & Sons Inc Allentown Pa
Griffin Mfg Co Erie Pa
C Hager & Sons Hinge Mfg Co St Louis Mo
Lafayette Metal Products Co Oakland Cal
Lawrence Bros Sterling Ill
Master Lock Co Milwaukee 10 Wis
McKinney Mfg Co Pittsburgh Pa
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Richards-Wilcox Mfg Co Aurora Ill
Safe Padlock & Hdwe Co Lancaster Pa
Sharon Hdwe Mfg Co Sharon Pa
Slaymaker Lock Co Lancaster Pa
The Stanley Wks New Britain Conn (272)

HAUL-UPS—log

Allis Chalmers Mfg Co Milwaukee Wis (398)
Corinth Machinery Co Corinth Miss (388)
The Filer & Stowell Co Milwaukee 7 Wis
Hyster Co Portland 8 Ore & Peoria 1 Ill
Jeffrey Mfg Co Columbus 16 O
Lidgerwood Mfg Co Elizabeth N J
Link-Belt Co 300 W Pershing Rd Chgo 9 Ill
Newhall Chain Forge & Iron Co 48 W Broadway New York 7 N Y
Prescott Co Menominee Mich
The Wheland Co Chattanooga 2 Tenn

HEATERS—coal

Locke Stove Co 114 W 11th St Kansas City 6 Mo

HEATERS—concrete

American Steel Works Kansas City 8 Mo
Hauck Mfg Co 126 10th Brooklyn N Y
Unique Mfg Co Inc 221 W Walton Chgo Ill

HEATERS—gas

Armstrong Products Corp Huntington 12 W Va
Detroit Sheet Mtl Wks Detroit Mich
Excelsior Stove & Mfg Co Quincy Ill
Payne Furnace & Supply Co Beverly Hills Cal
Peerless Mfg Corp Louisville 10 Ky
Ruud Mfg Co Pittsburgh 1 Pa
Surface Combustion Corp Toledo 1 Ohio
Gar Wood Industries Inc Detroit 11 Mich

HEATERS—oil

American Steel Works Kansas City 8 Mo
Automatic Burner Corp 1823 W Carroll Chgo 12 Ill
The Coleman Co Inc Wichita 1 Kan
The Estate Stove Co Hamilton Ohio
Excelsior Stove & Mfg Co Quincy Ill
Gray & Dudley Co Nashville 3 Tenn
The Macleod Co Cincinnati 22 Ohio
National Airoil Burner Co Philadelphia 34 Pa
Richmond Engineering Co Inc Richmond Va
Silent Sioux Oil Burner Corp Orange City Iowa
Harvey Whipple Inc Springfield Mass
Gar Wood Industries Inc Detroit 11 Mich

HEATERS—portable electric

Alliance Mfg Co Alliance O
American Foundry Equipment Co Mishawaka Ind
Armstrong Products Corp Huntington 12 W Va
Eagle Electric Mfg Co Inc 23-10 Bridge Plaza South Long Island City 1 N Y
Excelsior Stove & Mfg Co Quincy Ill
General Electric Co Schenectady 5 N Y
Knapp-Monarch Co St Louis Mo
Landers Frary & Clark New Britain Conn
Shepler Mfg Co Pittsburgh Pa (also built-in)
Harold E Trent Co Philadelphia 27 Pa

HEATERS—radiant room

Chattanooga Implement & Mfg Co Chattanooga 6 Tenn
Excelsior Stove & Mfg Co Quincy Ill
Florence Stove Co Gardner Mass
General Electric Co Schenectady 5 N Y
Koi-Gas Heater Co Nashville 3 Tenn
Locke Stove Co Kansas City 6 Mo
Malleable Iron Range Co Beaver Dam Wis
Persiro Mfg Corp Newark 5 N J
The Trane Co La Crosse Wis

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HEATERS—tank

Adams Co Dubuque Ia
American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
Beall Pipe & Tank Corp Portland Ore
Brower Mfg Co Quincy Ill
W E Caldwell Co Louisville 8 Ky
Dempster Mill Mfg Co Beatrice Neb
Excelsior Stove & Mfg Co Quincy Ill
Farwell Ozmun Kirk & Co St Paul 1 Minn
General Electric Co Schenectady N Y
Mt Vernon Furnace & Mfg Mt Vernon Ill
R Munroe & Sons Mfg Corp Pittsburgh 22 Pa
National Airoil Burner Co Philadelphia 34 Pa
Richmond Engineering Co Inc Richmond Va
Ruud Mfg Co Pittsburgh Pa
Harold E Trent Co Philadelphia 27 Pa

HEATERS—unit

American Blower Corp Detroit 32 Mich
American Foundry & Equip Co Mishawaka Ind
Burnham Boiler Corp Irvington-on-Hudson N Y
Carrier Corp Syracuse 1 N Y
Clarage Fan Co Kalamazoo Mich
Excelsior Stove & Mfg Co Quincy Ill
General Electric Co Schenectady N Y
Gilbert & Barker Mfg Co West Springfield Mass
Grinnell Co Inc Providence R I
Ilg Electric Ventilating Co 2850 N Crawford Av Chicago 41 Ill
McCord Radiator & Mfg Co Detroit Mich
McQuay Inc Minneapolis Minn
Modine Mfg Co Racine Wisc
D J Murray Mfg Wausau Wis
The Herman Nelson Corp 540 N Michigan Chgo Ill
Richmond Radiator Co 835 Fifth Av NY 17 NY
St Louis Blow Pipe & Heater Co St Louis Mo
Silent Sioux Oil Burner Corp Orange City Iowa
Surface Combustion Corp Toledo 1 Ohio
Trane Co LaCrosse Wisc
Westinghouse Electric Corp Sturtevant Div Boston 36 Mass (331)
Young Radiator Co Racine Wis

HEATERS—water

American Gas Machine Co Albert Lea Minn
American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
Automatic Burner Corp 1823 W Carroll Chgo 12 Ill
Burnham Boiler Corp Irvington-on-Hudson N Y
Chrysler Corporation Airtemp Division Dayton 1 Ohio
The Coleman Co Inc Wichita 1 Kan
Evans Products Co Detroit Mich
Excelsior Stove & Mfg Co Quincy Ill
Florence Stove Co Gardner Mass
Frigidaire Div General Motors Corp Dayton 1 Ohio
General Electric Co Schenectady 5 N Y
General Water Heater Corp Burbank Calif
Gilbert & Barker Mfg Co West Springfield Mass
Hotpoint Inc 5600 W Taylor St Chicago 44 Ill
International Heater Co Utica 2 N Y
Kewanee Boiler Corp Kewanee Ill
Landers Frary & Clark New Britain Conn
A J Lindemann & Hoverson Co 601 W Cleveland Av Milwaukee 7 Wis
H C Little Burner Co Inc 2nd & Lincoln San Rafael Cal
Locke Stove Co Kansas City 6 Mo
Lookout Boiler & Mfg Co Chattanooga 1 Tenn
Nash-Kelvinator Corp Detroit Mich
Natl Stamping & Electric Works 320 W Lake Chgo Ill
Norge Div Borg-Warner Corp Detroit Mich
Richmond Engineering Co Inc Richmond 5 Va
Ruud Mfg Co Pittsburgh Pa
Standard Gas Equipment Corp Baltimore Md
Timken Silent Automatic Div The Timken Detroit Axle Co Detroit 32 Mich
United States Radiator Corp Detroit Mich
Harvey Whipple Inc Springfield Mass
Whitlock Manufacturing Co Hartford Conn
Williams Oil-O-Matic Div Eureka Williams Corp Bloomington Ill
Gar Wood Industries Inc Detroit Mich

HEATING—steam or hot water

Airtemp Div Chrysler Corp Dayton 1 O
American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
Automatic Burner Corp 1823 W Carroll Chgo 12 Ill (oil)
Burnham Boiler Corp Irvington-on-Hudson N Y
Excelsior Stove & Mfg Co Quincy Ill
General Electric Co Schenectady 5 N Y
Gilbert & Barker Mfg Co West Springfield Mass
International Heater Co Utica 2 N Y
Kewanee Boiler Corp Kewanee Ill
Milcor Steel Co Milwaukee 4 Wis (319)
Penn Boiler & Burner Mfg Corp Lancaster Pa
Persiro Mfg Corp Newark 5 N J
Richardson & Boynton Co 1990 Park Av NY NY
Richmond Radiator Co 835 Fifth Av NY 17 NY
Surface Combustion Corp Toledo 1 Ohio
Trane Co La Crosse Wis
Williams Oil-O-Matic Div Eureka Williams Corp Bloomington Ill
Gar Wood Industries Inc Detroit Mich

HEATING—warm air

American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
Automatic Burner Corp 1823 W Carroll Chicago 12 Ill
Edwards Mfg Co Cincinnati 2 Ohio
Estate Stove Co Hamilton Ohio
Evans Products Co Detroit Mich
Excelsior Stove & Mfg Co Quincy Ill
General Electric Co Schenectady 5 N Y
Gilbert & Barker Mfg Co West Springfield Mass
Heil Co Milwaukee Wis
International Heater Co Utica 2 N Y
H C Little Burner Co Inc 2nd & Lincoln San Rafael Cal
Morrison Steel Products Inc Buffalo 7 N Y
L J Mueller Furnace Co Milwaukee Wis
Norge Heating & Conditioning Div Borg Warner Corp Detroit Mich
Payne Furnace & Supply Co Beverly Hills Cal
Penn Boiler & Burner Mfg Corp Box 1079 Lancaster Pa
Persiro Mfg Corp Newark 5 N J
Richmond Radiator Co 835 Fifth Av NY 17 NY
Round Oak Co Dowagiac Mich
Surface Combustion Corp Toledo 1 Ohio
Trane Co La Crosse Wis
Waterman-Waterbury Co Minneapolis Minn
Wheeling Furnace Corp Martins Ferry O
Williams Oil-O-Matic Div Eureka Williams Corp Bloomington Ill
Gar Wood Industries Inc Detroit Mich

HINGES—butt

American Cabinet Hdwe Corp Rockford Ill (285)
P & F Corbin New Britain Conn
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Inc Phil Pa
Griffin Mfg Co Erie Pa
C Hager & Sons Hinge Mfg Co St Louis Mo
Lawrence Bros Sterling Ill
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
McKinney Mfg Co Pittsburgh Pa
National Mfg Co Sterling Ill
Norwalk Lock Co 395 Broadway NY 13 NY
S Parker Hdwe Mfg Co 27 Ludlow St New York 2 N Y
Penn Hdwe Co Reading Pa
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Richards-Wilcox Mfg Co Aurora Ill
Russell & Erwin Div The American Hardware Corp New Britain Conn
Sharon Hardware Mfg Co Sharon Pa
Slaymaker Lock Co Lancaster Pa
Yale & Towne Mfg Co Stamford Conn (269)

HINGES—cabinet

American Cabinet Hdwe Corp Rockford Ill (285)
Cleveland Lock Wks Div Consolidated Iron Steel Mfg Co 1283 E 53rd Cleveland 14 Ohio (145)
P & F Corbin New Britain Conn
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
L F Grammes & Sons Inc Allentown Pa
McKinney Mfg Co Pittsburgh Pa
Natl Brass Co Grand Rapids Mich
National Hardware Co 86-30 103rd Av New York N Y
Nat'l Lock Co Rockford Ill (293)
S Parker Hdwe Mfg Co 27 Ludlow New York 2 N Y
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Russell & Erwin Div The American Hdw Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sharon Hdwe Mfg Co Sharon Pa
Shelby Spring Hinge Co Shelby O
Slaymaker Lock Co Lancaster Pa
The Stanley Wks New Britain Conn (272)
Yale & Towne Mfg Co Stamford Conn (269)

HINGES—gate

Allith-Prouty Inc Danville Ill
Chicago Spring Hinge Co 1502 Carroll Av Chgo Ill
Frantz Mfg Co Sterling Ill (298)
Keystone Steel & Wire Co Peoria Ill
McKinney Mfg Co Pittsburgh 12 Pa
Sharon Hardware Mfg Co Sharon Pa
The Stanley Works New Britain Conn (272)
Wagner Mfg Co Cedar Falls Iowa
Wrightsville Hardware Co Wrightsville Pa

HINGES—spring door

Bommer Spring Hinge Co Brooklyn 5 N Y
Chgo Spring Hinge Co 1500 W Carroll Chgo Ill
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Inc Phil Pa
S Parker Hardware Mfg Co 27 Ludlow St New York 2 N Y
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Russell & Erwin Div The American Hdwe Corp New Britain Conn
Sharon Hdwe Mfg Co Sharon Pa
Shelby Spring Hinge Co Shelby O
Slaymaker Lock Co Lancaster Pa
The Stanley Wks New Britain Conn (272)

HINGES—strap

Allith-Prouty Inc Danville Ill (heavy industrial type)
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Phil Pa
Griffin Mfg Co Erie Pa
C Hager & Sons Hinge Mfg Co St Louis Mo
Lawrence Bros Sterling Ill
McKinney Mfg Co Pittsburgh Pa
Natl Brass Co Grand Rapids Mich
S Parker Hardware Mfg Corp 27 Ludlow St New York 2 N Y
Richards-Wilcox Mfg Co Aurora Ill
Russell & Erwin Div The American Hdw Corp New Britain Conn
Sharon Hdwe Mfg Co Sharon Pa
The Stanley Wks New Britain Conn (272)
Wagner Mfg Co Cedar Falls Iowa

HOG HOUSE EQUIPMENT

Butler Mfg Co Kan City Mo
Clay Equipment Corp Cedar Falls Ia
Franklin Equip Co Monticello Ia
H D Hudson Mfg Co 589 E Illinois Chgo 11 Ill (311)
James Mfg Co Ft Atkinson Wis
LaCrosse Steel Roofing & Corrugating Co LaCrosse Wis
Ney Mfg Co Canton 4 Ohio
Starline Inc Harvard Ill
Willis Steel Corp Galesburg Ill

HOISTS—chain

Bridgeport Chain & Mfg Co Bridgeport Conn
J H. Channon Corp 1455 W Hubbard Chgo Ill
Chester Mfg Co Lisbon Ohio
Chisholm Moore Hoist Corp Tonawanda N Y
The Cleveland Crane & Engineering Co Wickliffe Ohio
Coffing Hoist Co Danville Ill
Columbus McKinnon Chain Corp Tonawanda N Y
Ford Chain Block Div American Chain & Cable Co Inc Philadelphia 25 Pa
Louden Mach Co Fairfield Ia

Number in parenthesis indicates page on which advertisement appears

Reading Chain & Block Corp 2100 Adams St Reading Pa
David Round & Son Cleveland 5 Ohio
Starline Inc Harvard Ill
Wright Mfg Div American Chain & Cable Co Inc York Pa
Yale & Towne Mfg Co Phil Pa (269)

HOISTS—drum

American Eng Co Philadelphia 25 Pa
American Hoist & Derrick Co 63 So Robert St Paul 1 Minn
American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
Bennett-Ireland Norwich N Y (264)
Bridgeport Chain & Mfg Co Bridgeport Conn
C H & E Mfg Co Milwaukee 12 Wis
Chisholm Moore Hoist Corp Tonawanda N Y
Cleveland Crane & Engineering Co Wickliffe Ohio
Clyde Iron Works Inc Duluth 1 Minn
Construction Machinery Co Waterloo Iowa
Essick Mfg Co Los Angeles 21 Calif
The Filer & Stowell Co Milwaukee 7 Wis
Hyster Co Portland 8 Ore & Peoria 1 Ill
Ingersoll-Rand Co 11 Broadway NY NY
Jaeger Machine Co Columbus Ohio
Joy Mfg Co Sullivan Div Michigan City Ind
Lane Mfg Co Montpelier Vermont (404)
Lidgerwood Mfg Co Elizabeth N J
Link-Belt Co 300 W Pershing Rd Chgo 9 Ill
Louden Mach Co Fairfield Ia
Prescott Co Menominee Mich
Shepard Niles Crane & Hoist Corp Montour Falls N Y
Silent Hoist & Crane Co 860 63rd Brooklyn 20 N Y (402)
Stephens-Adamson Mfg Co Aurora Ill
Stimmel Winch Co 37-24 33rd Long Island City 1 N Y
Washington Iron Works Seattle 4 Wash
Yale & Towne Mfg Co Phil Pa (269)

HOISTS—electric

American Engineering Co Philadelphia 25 Pa
American Hoist & Derrick Co St Paul 1 Minn
American Mfg Co Inc Tacoma 2 Wash (404)
Cleveland Crane & Engineering Co Wickliffe Ohio
Clyde Iron Works Inc Duluth 1 Minn
Coffing Hoist Co Danville Ill
Columbus McKinnon Chain Corp Tonawanda N Y
Detroit Hoist & Machine Co Detroit 11 Mich
Electro Lift Inc 32 Church New York 7 N Y
Harnischfeger Corp Milwaukee Wis
Joy Mfg Co Sullivan Div Michigan City Ind
Lidgerwood Mfg Co Elizabeth B N J
The Louden Machinery Co Fairfield Ia
Reading Chain & Block Corp Reading Pa
Shepard Niles Crane & Hoist Corp Montour Falls N Y
Stephens-Adamson Mfg Co Aurora Ill
Stimmel Winch Co 37-24 33rd St Long Island City 1 N Y
Wright Mfg Div American Chain & Cable Co Inc York Pa
The Yale & Towne Mfg Co Philadelphia 24 Pa (269)

HOISTS—gasoline

Silent Hoist & Crane Co 860 63rd St Brooklyn 20 N Y (402)

HOISTS—hydraulic dumping

Anthony Co Streator Ill
Chisholm-Moore Hoist Corp Tonawanda N Y
Galion Allsteel Body Co Galion O
Heil Co Milwaukee Wis
Perfection Steel Body Co Galion Ohio
St Paul Hydraulic Hoist Co Minneapolis 14 Minn
Gar Wood Industries Inc Detroit 11 Mich
Yale & Towne Mfg Co Phil Pa (269)

HOISTS—rope

American Eng Co Philadelphia 25 Pa
American Hoist & Derrick Co St Paul 1 Minn
Bennett-Ireland Inc Norwich N Y (264)
The Filer & Stowell Co Milwaukee 7 Wis
Lanebro Mfg Co Poughkeepsie N Y
Lidgerwood Mfg Co Elizabeth B N J
The Ney Mfg Co 948 High Av S W Canton 4 Ohio
Reading Chain & Block Corp Reading Pa
Starline Inc Harvard Ill
Sullivan Machinery Co Michigan City Ind

HOME APPLIANCES

Adel Precision Products Corp Burbank Calif
Admiral Corp 3800 W Cortland Chgo 47 Ill
Apex Rotarex Corp Cleveland 10 Ohio
Blackstone Corp Jamestown N Y
Chicago Flexible Shaft Co 1124 S Central Av Chgo Ill
Diehl Mfg Co 1124 Finderne Av Somerville N J
Frigidaire Div General Motors Corp Dayton 1 Ohio
General Electric Co Schenectady 5 N Y
Hotpoint Inc 5600 W Taylor St Chicago 44 Ill
Landers Frary & Clarke New Britain Conn
Mabey Electric Co Peoria Ill
The Pioneer Co Pittsburgh 22 Pa

HOME WORKSHOP EQUIPMENT

Buss Machine Works Holland Mich
Crescent Machine Co Leetonia Ohio
Delta Mfg Co Milwaukee 1 Wis
Equipment Engineering Co St Charles Ill
Mall Tool Co 7733 South Chicago Av Chgo 19 Ill (283)
C S Osborne & Co Harrison N J
Parks Woodworking Machine Co Cincinnati Ohio
Porter Cable Machine Co Syracuse N Y
Pratt & Whitney West Hartford Conn
Red Star Products Inc Cleveland Ohio (392-393)
Stanley Electric Tools New Britain Conn (272)
Stetson-Ross Machine Co Seattle Wash
Walker Turner Co East Plainfield N J

HOODS—ventilating, kitchen

Vent-A-Hood Co Dallas 9 Tex

HOOKS—awning

Copperweld Steel Co Glassport Pa

HOOKS—coat

Barrows Lock Works North Chicago Ill (301)
Champion Hdwe Co Geneva O
The Columbus Brass Mfg Co 620 Dublin Av Columbus 16 Ohio
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Phil Pa
Knape & Vogt Mfg Co Grand Rapids 4 Mich
Metal Craft Co Detroit Mich
National Lock Co Rockford Ill (293)
S Parker Hardware Mfg Corp 27 Ludlow St New York 2 N Y
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn Hdwe Co Reading Pa
Phoenix Lock Co Newark 7 N J
Russell & Erwin Div The American Hdw Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster
Sager Lock Works North Chicago Ill
Sargent & Co New Haven Conn (295)
Sharon Hdwe Mfg Co Sharon Pa
Shelby Spring Hinge Co Shelby O
Yale & Towne Mfg Co Stamford Conn (269)

HOSE—air compressor

Acme Rubber Mfg Co Trenton N J
Boston Woven Hose & Rubber Co Cambridge Mass
Broadway Rubber Mfg Co 529 E Broadway Louisville 2 Ky
Chicago Pneumatic Tool Co 6 E 44th St New York 17 N Y
Cincinnati Rubber Mfg Co Cincinnati O
Continental Rubber Wks Erie Pa
Gates Rubber Co 999 S Broadway Denver 17 Colo
Goodall Rubber Co 5 S 36th Philadelphia 4 Pa
The B F Goodrich Co Arkron Ohio
Ingersoll-Rand Co 11 Broadway New York 4 N Y
Joy Mfg Co Sullivan Div Michigan City Ind
Raybestos-Manhattan Inc Manhattan Rubber Div Passaic N J
Republic Rubber Div Lee Rubber & Tire Corp Youngstown 1 Ohio
Thermoid Rubber Div Thermoid Co Trenton 6 N J
U S Rubber Co 1230 5th NY NY

HOSE—garden

Acme Rubber Mfg Co Trenton N J
Boston Woven Hose & Rubber Co Cambridge Mass
Broadway Rubber Mfg Co 529 E Broadway Louisville 2 Ky
Continental Rubber Wks Erie Pa
Gates Rubber Co 999 S Broadway Denver 17 Colo
Goodall Rubber Co 5 S 36th Philadelphia 4 Pa
The B F Goodrich Co Akron Ohio
Raybestos-Manhattan Inc Manhattan Rubber Div Passaic N J
Republic Rubber Div Lee Rubber & Tire Corp Youngstown 1 Ohio
Thermoid Rubber Div Thermoid Co Trenton 6 N J
United States Rubber Co 1230 6th Av New York 20 N Y

HOSE—industrial

Acme Rubber Mfg Co Trenton N J
Broadway Rubber Mfg Co 529 E Broadway Louisville 2 Ky
Cincinnati Rubber Mfg Co Cincinnati 12 Ohio
Gates Rubber Co 999 S Broadway Denver 17 Colo
Goodall Rubber Co 5 S 36th Philadelphia 4 Pa
The B F Goodrich Co Akron Ohio
Raybestos-Manhattan Inc Manhattan Rubber Div Passaic N J
Republic Rubber Div Lee Rubber & Tire Corp Youngstown 1 Ohio
Thermoid Rubber Div Thermoid Co Trenton 6 N J
United States Rubber Co 1230 6th Av New York 20 N Y

HOSE—linen fire

W D Allen Mfg Co 566 W Lake Chgo 6 Ill
Boston Woven Hose & Rubber Co Boston Mass
Elkhart Brass Mfg Co Elkhart Ind
Goodall Rubber Co 5 S 36th Philadelphia 4 Pa
Raybestos-Manhattan Inc Manhattan Rubber Div Passaic N J
United States Rubber Co 1230 6th Av New York 20 N Y
Wirt & Knox Mfg Co Phil 32 Pa

HOUSE NUMBERS

Cambridge Tile Mfg Co Cincinnati 15 Ohio (tile)
Erco Mfg Co 4010 W Montrose Av Chicago 41 Ill
Newman Bros Inc 660 W 4th St Cincinnati 3 Ohio (bronze, aluminum, stainless steel)
Reflecto Letters 411 E 101 St New York 29 N Y (luminous & black plastic)

INCINERATORS—garbage

Detroit-Michigan Stove Co Detroit Mich
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Ewing Incinerator Co 4722 Ravenswood Av Chgo 40 Ill
J W Fiske Iron Works 78 Park Place New York 7 N Y
Gabriel Steel Co Detroit 12 Mich
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Kerner Incinerator Div Morse Boulger Destruction Co 205 E 42nd New York 17 N Y
Majestic Co Huntington Ind (105)
Pittsburgh Incinerator Co 131 Beam Way Pittsburgh Pa
Renown Stove Co Owosso Mich
E C Stearns & Co Syracuse NY
Wheeling Corrugating Co Wheeling W Va (357)

INSECTICIDES

Adco Inc Sedalia Mo
Agkem Inc Quincy Ill
The American Agricultural Chemical Co 50 Church New York 7 N Y
American Cyanamid & Chemical Corp 30 Rockefeller Plaza New York 20 N Y
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Boyle-Midway Inc 257 Cornelison Av Jersey City 2 N J (182)
Carbola Chemical Co Inc Natural Bridge N Y
Carbolineum Wood Preserving Co Milwaukee 3 Wis
Cre-O-Tox Chem Co Memphis Tenn (79)
The Dow Chemical Co Midland Mich

Number in parenthesis indicates page on which advertisement appears

E I DuPont de Nemours & Co Inc Wilmington Del
Forman Ford & Co Minneapolis 1 Minn
Geo C Gordon Chemical Co Kansas City 7 Mo
Harrop Chemical Co 135 Hoboken Av Jersey City 2 N J
Inter-State Oil Co Kansas City 3 Kan
Lowe Bros Co Dayton Ohio (173)
J A Meinhardt & Co 2622 S Shields Av Chgo Ill
Monsanto Chemical Co 1700 S Second St Louis 4 Mo
The Neville Co Neville Island Pittsburgh 25 Pa
Pennsylvania Salt Mfg Co Philadelphia 7 Pa
Pittsburgh Plate Glass Co Pittsburgh 19 Pa (169)
Protection Products Mfg Co Kalamazoo Mich (68)
Republic Creosoting Co Indianapolis 4 Ind
Sherwin Williams Co Cleveland O (183)
Wood Treating Chemicals Co St Louis Mo

INSERTS—concrete

Bethlehem Steel Co Bethlehem Pa
Carpenter & Paterson Inc 1190 Bennington East Boston 28 Mass
Dayton Malleable Iron Co P O Box 980 Dayton 1 Ohio
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Fee & Mason Mfg Co Inc 81 Beekman New York 7 N Y
Gabriel Steel Co Detroit Mich
The Globe Stamping Div Hupp Motor Car Corp Cleveland 2 Ohio
Goldsmith Metal Lath Co Cincinnati 32 Ohio
Grabler Mfg Co Cleveland O
Lakeside Malleable Casting Co Racine Wis
Truscon Steel Co Youngstown O
Union Steel Prod Co Albion Mich
Wagner Mfg Co Cedar Falls Iowa

INSTRUMENTS — indicating, recording & controlling

L R Bradley & Co 25 W 45th St New York 19 N Y (396)
The Bristol Co Waterbury 91 Conn
Foxboro Co Foxboro Mass
General Electric Co Schenectady N Y
Grand Rapids Vapor Kiln Inc Grand Rapids 2 Mich
Leeds & Northrup Co Philadelphia 44 Pa
Minneapolis Honeywell Reg Co Minneapolis Minn
Portable Products Corp C J Tagliabue Div Park & Nostrand Brooklyn 5 NY
Taylor Instrument Co Rochester 1 N Y
Westinghouse Electric Corp 306 Fourth Av Pittsburgh 30 Pa (331)

INSULATION—blanket or batt type

Acme Asbestos Covering & Flooring Co 244 N Elizabeth Chgo 7 Ill
Armstrong Cork Co Lancaster Pa
Barrett Div Allied Chemical & Dye Corp 40 Rector N Y N Y (223)
Barnhardt Mfg Co Charlotte 1 N C (cotton)
Philip Carey Mfg Co Cincinnati 15 Ohio (235)
Carney Rockwool Co Mankato Minn
Celotex Corp 120 S LaSalle Chgo Ill (batt type only) (226--227)
The Eagle-Picher Co Cincinnati 1 Ohio
The Flintkote Co Inc 30 Rockefeller Plaza N Y N Y
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
Gilman Bros Co Gilman Conn (238)
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Kimberly-Clark Corp Kimsul Div Neenah Wis (241)
Lockport Cotton Batting Co Lockport N Y (252-253)
Masonite Corp 111 W Washington Chgo Ill
Munford Co Inc Atlanta Ga
National Cotton Council Memphis 1 Tenn (246)
National Gypsum Co Buffalo N Y (198-199)
B F Nelson Mfg Co Minneapolis Minn
Owens-Corning Fiberglas Corp Toledo 1 Ohio
Plastergon Wallboard Co 196 Philadelphia Av Buffalo 7 NY
Reynolds Metals Co Richmond Va (231)
Standard Asbestos Mfg Co 820 W Lake St Chicago 7 Ill
Std Lime & Stone Co Baltimore 3 Md
Taylor Bedding Mfg Co Taylor Texas (242-243)
U S Gypsum Co 300 W Adams Chgo 6 Ill
Wood Conversion Co First Nat'l Bank Bldg St Paul 1 Minn

INSULATION—blowing wool

Armstrong Cork Co Lancaster Pa
Eagle-Picher Co Cincinnati 1 Ohio
Munford Co Inc Atlanta Ga
National Gypsum Co Buffalo 2 N Y (198-199)
Owens-Corning Fiberglas Corp Toledo 1 Ohio
Plastergon Wall Board Co Buffalo 7 NY
Riverton Lime & Stone Co Inc Riverton Va
The Ruberoid Co 500 Fifth Av New York 18 N Y (196)
United States Gypsum Co 300 W Adams St Chicago 6 Ill
Woodside Industries Wauwatosa 13 Wis

INSULATION—board or sheet

Acme Asbestos Covering & Flooring Co 244 N Elizabeth Chgo 7 Ill
Armstrong Cork Co Lancaster Pa
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Dyke Bros Little Rock Ark (141)
Fir-Tex Portland Ore
Flintkote Co 30 Rockefeller Plaza NY NY
Hawaiian Cane Products Ltd Culver City Calif
Insulite Division Minnesota & Ontario Paper Co Baker Arcade Bldg Minneapolis 2 Minn (194-195)
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Keasbey & Mattison Co Ambler Pa
Keystone Asphalt Products Co 43 E Ohio St Chicago 11 Ill
National Gypsum Co Buffalo NY (198-199)
B F Nelson Mfg Co Minneapolis 13 Minn
Owens-Corning Fiberglas Corp Toledo 1 Ohio
Plastergon Wallboard Co Buffalo 7 N Y
Raybestos-Manhattan Inc Passaic N J
Servicized Products Corp 6051 W 65th St Chicago 38 Ill
U S Gypsum Co 300 W Adams Chgo Ill
Wasco Flashing Co Cambridge Mass (232)
Wood Conversion Co St Paul Minn

INSULATION—glass (foam)

Armstrong Cork Co Lancaster Pa
Pittsburgh Corning Corp Pittsburgh 22 Pa
Pittsburgh Plate Glass Co Pittsburgh Pa (151)

INSULATION—loose fill

Acme Asbestos Covering & Flooring Co 244 N Elizabeth Chgo 7 Ill
Armstrong Cork Co Lancaster Pa
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Philip Carey Mfg Co Cincinnati 15 Ohio (235)
Celotex Corp 120 S La Salle Chgo 10 Ill (226-227)
Eagle-Picher Co Cincinnati 1 Ohio
The Flintkote Co Inc 30 Rockefeller Plaza NY NY
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
Insul-Wool Insulation Corp Wichita
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Mission Lime Products Co Los Angeles 12 Calif
Munford Co Inc Atlanta Ga
B F Nelson Mfg Co Minneapolis Minn
Owens-Corning Fiberglas Corp Toledo 1 Ohio
Plastergon Wallboard Co 196 Philadelphia Av Buffalo 7 NY
Plibrico Jointless Firebrick Co 1800 N Kingsbury Chgo 14 Ill
Riverton Lime & Stone Co Inc Riverton Va
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
U S Gypsum Co 300 W Adams Chgo 6 Ill
Universal Zonolite Insulation Co 135 S La Salle St Chgo Ill (245)
Western Mineral Products Co Milwaukee Wis
Western Vermiculite Co Denver Colo
Woodside Industries Wauwatosa 13 Wis

INSULATION—plastic

Acme Asbestos Covering & Flooring Co 244 N Elizabeth Chgo 7 Ill
American Phenolic Corp 1830 S 54th Av Cicero 50 Ill
Eagle-Picher Co Cincinnati 1 Ohio
A C Horn Co 43-42 Tenth Long Island City 1 NY
Irvington Varnish & Insulator Co Irvington 11 N J
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
Mexico Refractories Co Mexico Missouri
Mixtite Corp North Haven Conn
Plibrico Jointless Firebrick Co 1800 N Kingsbury Chgo 14 Ill
Universal Zonolite Insulation Co 135 S La Salle St Chgo 3 Ill (245)
Western Mineral Products Co Milwaukee 4 Wis

INSULATION—reflective type

American Flange & Mfg Co Inc 30 Rockefeller Plaza NY NY
Lockport Cotton Batting Co Lockport N Y (252-253)
Reflect-O Inc 105 W Adams St Chicago
Reynolds Metals Co Richmond Va (231)
Richkraft Co Builders Bldg Chicago 1 (250-251)
Silvercote Products Inc 161 E Erie Chgo 11 Ill
The Sisalkraft Co 205 W Wacker Dr Chgo 6 Ill (237)
U S Gypsum Co 300 W Adams Chgo Ill
United States Rubber Co 1230 6th Av New York 20 N Y

INSULATION—spray-on

Mexico Refractories Co Mexico Mo
Richkraft Co Builders Bldg Chicago 1 Ill (250-251)
Sprayo-Flake Co 2715 W Irving Pk Chgo Ill

INSULATION—wool

Acme Asbestos Covering & Flooring Co 244 N Elizabeth Chgo 7 Ill
Armstrong Cork Co Lancaster Pa
Barrett Div Allied Chem & Dye Corp 40 Rector St NY NY (223)
Philip Carey Mfg Co Cincinnati 15 O (235)
Celotex Corp 120 S La Salle Chgo Ill (226-227)
The Eagle-Picher Co Cincinnati 2 Ohio
Flintkote Co 30 Rockefeller Plaza NY NY
Johns-Manville Corp 22 E 40th NY 16 NY (224)
National Gypsum Co Buffalo N Y (198-199)
Owens-Corning Fiberglas Corp Toledo 1 Ohio (mineral)
Pacific Lumber Co 100 Bush St San Francisco Calif (redwood)
Plastergon Wallboard Co 196 Philadelphia Av Buffalo 7 NY
Plibrico Jointless Firebrick Co 1800 N Kingsbury Chgo 14 Ill
Riverton Lime & Stone Co Inc Riverton Va
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
Standard Lime & Stone Co Baltimore Md
Wood Conversion Co First National Bank Bldg St Paul 1 Minn
Woodside Industries Wauwatosa 13 Wis

INSULATION KNIVES

Modern Specialties Co 4140 W Harrison St Chicago 24 Ill (200)

INSURANCE

Central Mfrs' Mutual Insurance Co Van Wert Ohio
Employers Mutual Liability Insurance Co of Wis Wausau Wis (381)
Indiana Lumbermens Mutual Insurance Co Indianapolis 9 Ind
Lumber Mutual Fire Insurance Co 632 Beacon St Boston 15 Mass
Lumbermens Mutual Casualty Co 4750 Sheridan Rd Chgo Ill (410)
Lumbermen's Underwriting Alliance R A Long Bldg Kansas City 6 Mo
Pennsylvania Lumbermen's Mutual Fire Insurance Co Philadelphia 6 Pa

INTER-COMMUNICATION SYSTEMS

Edwards & Co Norwalk Conn
Executone Inc 415 Lexington Av New York 17 N Y
General Electric Co Schenectady 5 N Y
Kellogg Switchboard & Supply Co 6650 S Cicero Chgo Ill
Select-O-Phone Co Div of Screw Mach Prod Co Inc 1012 Eddy Providence 5 R I
Signal Eng & Mfg Co 154 W 14 NY NY
Talk-A-Phone Mfg Co 1512 S Pulaski Rd Chicago 23 Ill

Number in parenthesis indicates page on which advertisement appears

IRONERS—electric

Apex Rotarex Corp Cleveland 10 Ohio
Armstrong Products Corp Huntington W Va
Chicago Dryer Co 2210 N Pulaski Rd Chgo 39 Ill
General Electric Co Schenectady 5 N Y
Hotpoint Inc 5600 W Taylor St Chicago 44 Ill
Landers Frary & Clark New Britain Conn
Westinghouse Electric Corp 306 Fourth Av Pittsburgh 30 Pa (331)

IRONING BOARDS

Brewer-Titchener Corp Cortland N Y
Chicago Curtain Stretcher Co 1127 W 37th Chgo 9 Ill
Chicago Dryer Co 2210 N Pulaski Rd Chgo 39 Ill
J R Clark Co Minneapolis 5 Minn
Curtis Companies Clinton Ia
Davis Plywood Corp Cleveland 11 Ohio
L H Eubank & Son Inglewood Calif
Howard Mfg Co Kent Wash
Ideal Co Box 889 Waco Tex
Lyon Metal Products Inc Aurora Ill
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Natl Washboard Co 310 S Michigan Av Chgo Ill
Rich Ladder & Mfg Co 1000 Depot St Cincinnati O
Geo J Silbernagel 8 S Michigan Av Chicago 3 Ill
Western Pine Mfg Co Ltd Spokane 7 Wash (49)
Woodenware Products Corp St Louis 1 Mo
Zoss Ladder & Mfg Co Portland 1 Ore (279)

IRONS—soldering

Wm L Barrett Co 34 School St Bristol Conn
Otto Bernz Co Rochester N Y
Eagle Electric Mfg Co Inc 23-10 Bridge Plaza South Long Island City 1 N Y
Electric Soldering Iron Co Inc Deep River Conn
Everhot Mfg Co Maywood Ill
General Electric Co Schenectady 5 N Y
Hexacon Electric Co Roselle Pk N J
Lenk Mfg Co Newton Lower Falls Mass
Revere Copper and Brass Inc 230 Park Av NY 17 NY
The Stanley Wks New Britain Conn (272)
Vulcan Electric Co Danvers Mass
A H Waage Electric Co 54 Park Place New York 7 N Y

JACKS—adjustable wood-steel

Breyer Bros Whiting & Co Waupun Wis
Joyce-Cridland Co Dayton 3 Ohio
M & M Wire Clamp Co 983-17th Av S E Minneapolis 14 Minn
John S Tilley Ladders Co Inc Watervliet NY

JACKS—house moving

American Skein & Fdry Co Racine Wis
Duff-Norton Mfg Co Pittsburgh Pa
Joyce Cridland Co Dayton O
Stimmel Winch Co 37-24 33rd Long Island City 1 N Y
A L Swett Iron Works Medina N Y
Templeton Kenly & Co 1020 S Central Chgo Ill

JACKS—ladder

W W Babcock Co Inc Bath N Y
Bauer Mfg Co Wooster O
Breyer Bros Whiting & Co Waupun Wis
Goshen Mfg Co Goshen Ind
Holland Ladder & Mfg Co Holland Mich
Michigan Ladder Co Ypsilanti Mich
Newark Ladder & Bracket Sales Co Inc 657 S 13th Newark 3 NJ
Ridgely Trimmer Co Springfield Ohio
John S Tilley Ladders Co Inc Watervliet N Y
Topping Ladder Co Marion N Y
United Screw & Bolt Corp Cleveland 2
Wagner Mfg Co Cedar Falls Iowa
Warner Mfg Co 801 16th Av SE Minneapolis 14 Minn

JALOUSIES

Gate City Sash & Door Co Fort Lauderdale Fla (112-113)

JOINTERS—saw

American Saw Mill Mchry Co Hackettstown N J
E C Atkins & Co Indianapolis Ind
Crescent Machine Co Leetonia O
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Franklin Tool Co Buffalo N Y
L Power & Company 2815 Oakford Philadelphia 46 Pa
Prescott Co Menominee Mich
E C Stearns & Co Syracuse N Y
Stetson-Ross Machine Co Seattle 4 Wash
J D Wallace & Co 153 S California Chgo 12 Ill

JOIST ANGLES

Copco Steel & Engineering Co Detroit 27 Mich
Duplex Hanger Co Cleveland Ohio
Ideal Hanger Co Cleveland 14 Ohio (105)
Laclede Steel Co St Louis 1 Mo
St Paul Foundry & Mfg Co St Paul 3 Minn
Timber Engineering Co 1319 Eighteenth St N W Washington 6 D C

KEY BLANKS

Atlas-Ansonia Co North Haven Conn
Barrows Lock Works North Chicago Ill (301)
P & F Corbin Mfg Co New Britain Conn
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
Master Lock Co Milwaukee Wis
Sager Lock Works North Chicago Ill
Slaymaker Lock Co Lancaster Pa
Yale & Towne Mfg Co Stamford Conn (269)

KNIVES—high speed

E C Atkins & Co Indianapolis 9 Ind
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Ekstrom, Carlson & Coe Rockford Ill
Oliver Machinery Co Grand Rapids 2 Mich
Simonds Saw & Steel Co Fitchburg Mass
S A Woods Machine Co Boston 27 Mass

KNIVES—machine

American Knife Co Baldwinsville N Y
E C Atkins & Co Indianapolis Ind
Boice Crane Co Toledo 6 Ohio
Circo Tool Co Milwaukee 3 Wis
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Huther Bros Saw Mfg Co Rochester N Y
E T Lippert Saw Co Pittsburgh 9 Pa
Oliver Machinery Co Grand Rapids 2 Mich
Simonds Saw & Steel Co Fitchburg Mass
Taylor Stiles & Co Riegelsville N J (501)
S A Woods Machine Co Boston 27 Mass
Woodworkers Tool Wks 222 S Jefferson Chgo Ill
Yates American Mach Co Beloit Wis

KNIVES—putty, linoleum, roofing

Atlas-Ansonia Co North Haven Conn
Bridgeport Hdwe Mfg Corp Bridgeport Conn
Cattaraugus Cutlery Co Little Valley N Y
Clyde Cutlery Co Clyde O
Forsberg Mfg Co Bridgeport Conn
Glaziers Tool Mfg Co 611 W Adams Chgo Ill
Goodell Co Antrim N H
Lamson & Goodnow Mfg Co Shelburne Falls Mass
Landers Frary & Clark New Britain Conn
Modern Specialties Co 4140 W Harrison St Chicago 24 Ill (roofing & insulation) (200)
Murray-Black Co Springfield O
Oxford Tool Co Phil 22 Pa
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Red Devil Tools Irvington 11 NJ (288)
Ridgely Trimmer Co Springfield Ohio
Russell Harrington Cutlery Co Southbridge Mass
Stencil Specialty Co Jersey City N J
United Wire Goods Mfg Co Inc 1150 Broadway NY NY
Warner Mfg Co 801 16th Av SE Minneapolis 14 Minn

KNIVES—veneer

E. C. Atkins & Co Indianapolis Ind
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Simonds Saw & Steel Co Fitchburg Mass

KNOBS—brass & bronze

American Cabinet Hdwe Corp Rockford Ill (285)
Barrows Lock Works North Chicago Ill (301)
Best Universal Lock Co 10 No Senate Indianapolis 4 Ind
Champion Hdwe Co Geneva O
J Chesler & Sons Co 41 Varick av Brooklyn N Y
The Columbus Brass Mfg Co Columbus 16 Ohio
Erco Mfg Co 4010 W Montrose Av Chgo Ill
Fiwale Equipment Mfg Co 165 Church NY 7 NY
H S Getty & Co Inc Phil Pa
Lawrence Bros Sterling Ill
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
Natl Brass Co Grand Rapids Mich
National Hardware Co 86-30 103rd Av NY NY
National Lock Co Rockford Ill (293)
Norwalk Lock Co 395 Broadway NY 13 NY
Pacific Plastic & Mfg Co Inc Los Angeles Cal
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn Hardware Co Reading Pa
Reading Hardware Corp Reading Pa
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sargent & Co New Haven Conn (295)
Schlage Lock Co San Francisco 19 Calif
Slaymaker Lock Co Lancaster Pa
The Stanley Wks New Britain Conn (272)
Technical Glass Co Inc 2050 E 48th Los Angeles 11 Cal
Yale & Towne Mfg Co Stamford Conn (269)

KNOBS—glass

Barrows Lock Works North Chicago Ill (301)
Best Universal Lock Co 10 No Senate Indianapolis 4 Ind
J Chesler & Sons 41 Varick Av Brooklyn N Y
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
Norwalk Lock Co 395 Broadway NY 13 NY
Pacific Plastic & Mfg Co Inc Los Angeles Cal
Penn Hardware Co Reading Pa
Reading Hardware Corp Reading Pa
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sargent & Co New Haven 9 Conn (295)
Slaymaker Lock Co Lancaster Pa
Technical Glass Co Inc Los Angeles Cal
Yale & Towne Mfg Co Stamford Conn (269)

KNOBS—plastic

American Cabinet Hardware Corp Rockford Ill (285)
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Lockwood Hardware Mfg Co Fitchburg Mass (270)
Modern Plastic Co Los Angeles Cal
Natl Brass Co Grand Rapids Mich
National Hardware Co 86-30 103rd Av NY NY
National Lock Co Rockford Ill (293)
Pacific Plastic & Mfg Co Inc Los Angeles Cal
Slaymaker Lock Co Lancaster Pa
Superior Plastic Co 426 N Oakley Chicago Ill
Technical Glass Co Inc Los Angeles 11 Calif

KNOBS—wood

R F Cooke Mfg Co Orange Mass

LACQUER

American Marietta Co 43 E Ohio Chgo 11 Ill
Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Berry Bros Inc Detroit 7 Mich
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
E I du Pont de Nemours Co Wilmington Del
Forman Ford & Co Minneapolis 1 Minn
Glidden Co Cleveland O
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
A C Horn Co 43-42 Tenth Long Island City 1 NY
Lowe Bros Co Dayton Ohio (173)
John Lucas & Co Phil Pa
The Martin-Senour Co 2520 S Quarry Chgo 8 Ill

Number in parenthesis indicates page on which advertisement appears

Murphy Paint Div Interchemical Corp 224 McWhorter Newark 1 N J
The O'Brien Corp South Bend 21 Ind
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Peaslee-Gaulbert Paint & Varnish Co Louisville Ky
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Rockford Paint Mfg Co Rockford Ill
Rogers Paint Products Inc Detroit 11 Mich
Sherwin-Williams Co Cleveland O (183)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Valentine & Co Inc 11 E 36th New York 16 N Y

LADDERS—wood—all types

American Ladder Co 3700 W 38th Chgo Ill
W W Babcock Co Inc Bath N Y
John Berg Mfg Co 5319 S LaSalle Chgo 9 Ill
Breyer Bros Whiting & Co Waupun Wis
J R Clark Co Minneapolis 5 Minn
Davenport Ladder Co 2365 McKinley Av Davenport Ia
The Goshen Mfg Co Goshen Ind
Heider Mfg Co Carroll Ia
Holland Ladder & Mfg Co Holland Mich
Howard Mfg Co Kent Wash
Michigan Ladder Co Ypsilanti Mich
Nappanee Lbr & Mfg Co Nappanee Ind
Newark Ladder & Bracket Sales Co Inc 657 S 13th Newark 3 NJ
The Patent Scaffolding Co 1550 N Dayton Chicago 22 Ill
Pittsburgh Plat Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Rich Ladder & Mfg Co 1000 Depot St Cincinnati 4 O
Richards-Wilcox Mfg Co Aurora Ill
Rowe Mfg Co Galesburg Ill
Tacoma Lumber Fabricating Co Tacoma 1 Wash
John S Tilley Ladders Co Inc Watervliet NY
Topping Ladder Co Marion N Y
Woodenware Products Corp St Louis 1 Mo
J O Young Co Springfield 7 Mass
Zoss Ladder & Mfg Co Portland 1 Ore (279)

LAMPS & LANTERNS—gasoline pressure

American Gas Machine Co Albert Lea Minn
Turner Brass Wks Sycamore Ill

LAMPS & LANTERNS—oil

Bradley & Hubbard Mfg Div Parker Co Meriden Conn
Mantle Lamp Co of America 223 W Jackson Blvd Chgo Ill
United States Glass Co Tiffin O

LAMPS & LANTERNS—ornamental

Erco Mfg Co 4010 W Montrose Av Chgo Ill
Edwin F Guth Co St Louis 3 Mo
Chas Parker Co Meriden Conn
Stewart Iron Wks Co Inc Cincinnati 1 O
Superior Plastic Co 426 N Oakley Av Chicago

LATCHES—door

Allith-Prouty Inc Danville Ill
American Cabinet Hdwe Corp Rockford Ill (285)
Barrows Lock Works North Chicago Ill (301)
Best Universal Lock Co 10 No Senate Indianapolis 4 Ind
Casement Hdwe Co 496 N Wood Chgo Ill
P & F Corbin New Britain Conn
Eberhard Mfg Co Div Eastern Malleable Iron Co Cleveland 4 Ohio
Erco Mfg Co 4010 W Montrose Ave Chicago 41 Ill
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Inc Philadelphia 40 Pa
Griffin Mfg Co Erie Pa
Lawrence Bros Sterling Ill
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
McKinney Mfg Co Pittsburgh Pa
National Brass Co Grand Rapids Mich
Newell Mfg Co Lowell Mich
Norwalk Lock Co 395 Broadway NY 13 NY
Pacific Plastic & Mfg Co Inc Los Angeles 16 Calif
Penn Hardware Co Reading Pa
Reading Hdwe Corp Reading Pa
Richards-Wilcox Mfg Co Aurora Ill
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sargent & Co New Haven Conn (295)
Schlage Lock Co San Francisco 19 Calif
Sharon Hardware Mfg Co Sharon Pa
Shelby Spring Hinge Co Shelby O
Slaymaker Lock Co Lancaster Pa
The Stanley Wks New Britain Conn (272)
Technical Glass Co Inc Los Angeles 11 Calif
Wagner Mfg Co Cedar Falls Ia
Wayne Mfg Co Detroit 10 Mich
Wright Products Co St Paul Park Minn
Yale & Towne Mfg Co Stamford Conn (269)

LATCHES—gate

Barrows Lock Works North Chicago Ill (301)
Cyclone Fence Div American Steel & Wire Co P O Box 260 Waukegan 1 Ill
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
Lawrence Bros Sterling Ill
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
National Brass Co Grand Rapids Mich
Norwalk Lock Co 395 Broadway NY 13 NY
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sharon Hardware Mfg Co Sharon Pa
The Stanley Wks New Britain Conn (272)
Wrightsville Hardware Co Wrightsville Pa
Yale & Towne Mfg Co Stamford Conn (269)

LATH—gypsum

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Prod Corp 120 S LaSalle Chgo Ill (215)
National Gypsum Co Inc Buffalo N Y (198-199)
Pacific Portland Cement Co San Francisco 6 Cal
Schumacher Wall Board Corp South Gate Cal
Sealcon Products Inc Minneapolis 2 Minn
U. S. Gypsum Co 300 W Adams Chgo 6 Ill

LATH—insulating

Armstrong Cork Co Lancaster Pa
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Fir-Tex Porter Bldg Portland 4 Ore
The Flintkote Co Inc 30 Rockefeller Plaza New York N Y
Hawaiian Cane Products Ltd Culver City Calif
Insulite Division Minnesota & Ontario Paper Co Baker Arcade Bldg Minneapolis 2 Minn (194-195)
Johns-Manville Corp 22 E 40th NY NY (224)
Masonite Corp 111 W Washington Chgo Ill
Plastergon Wallboard Co 196 Philadelphia Av Buffalo 7 NY
U S Gypsum Co 300 W Adams Chgo Ill
Wood Conversion Co St Paul Minn

LATH—metal

Alabama Metal Lath Co Birmingham 1 Ala
Bethlehem Steel Co Bethlehem Pa
The Bostwick Steel Lath Co Niles O (360-361)
Ceco Steel Products Corp 5701 W 26th St Chicago 50 Ill
Goldsmith Metal Lath Co Cincinnati 32 Ohio
Klauer Mfg Co Dubuque Iowa
Milcor Steel Co Milwaukee 4 Wis (319)
National Gypsum Co Buffalo N Y (198-199)
Pacific Portland Cement Co San Francisco 6 Cal
Penn Metal Co Inc Parkersburg W Va (359)
Pittsburgh Steel Co Pittsburgh 30 Pa
Republic Steel Corp Cleveland 1 Ohio
Sealcon Products Inc Minneapolis 2 Minn
Soule Steel Co San Francisco 24 Cal
Truscon Steel Co Youngstown 1 O
U S Gypsum Co 300 W Adams Chgo 6 Ill
Wheeling Corrugating Co Wheeling W Va (357)

LATH—wood (See lumber section beginning page 479)

LATHES—woodworking

Arcade Mfg Co Freeport Ill
Boice Crane Co Toledo O
Crescent Mach Co Leetonia O
Delta Mfg Co Milwaukee Wis
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
Lewis T Kline Co Alpena Mich
Oliver Machinery Co Grand Rapids 2 Mich
Pringle & Brodie Machinery Co 566 W Polk St Chicago Ill
Walker Turner Co Inc Plainfield N J
J D Wallace & Co 153 S California Av Chgo 12 Ill
Baxter D Whitney & Son Inc Winchendon Mass
Yates-American Machine Co Beloit Wis

LEAD—red

Acme White Lead & Color Works Detroit 11 Mich
Devoe & Raynolds Co 787 First Av N Y 17 N Y
The Eagle-Picher Co Cincinnati 1 Ohio
Glidden Co Cleveland O
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
Hammond Lead Products Inc Hammond Ind
National Lead Co 111 Broadway NY NY
Peaslee-Gaulbert Paint & Varnish Co Louisville Ky
Pittsburgh Plate Glass Co Pittsburgh Pa (169)
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Wadsworth Howland & Co 141 Federal Boston Mass

LEAD—white

Acme White Lead & Color Wks 8250 St Aubin Av Detroit 11 Mich
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
The Eagle-Picher Co Cincinnati 1 Ohio
W P Fuller & Co 301 Mission San Fran 19 Cal
Glidden Co Cleveland O
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
Inland White Lead Co 741 W Gladys Av Chgo Ill
National Lead Co 111 Broadway NY NY
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Seidlitz Paint & Varnish Co Kansas City 10 Mo

LEVEL RODS—surveying

Chicago Steel Tape Co 7956 S Chicago Av Chgo 17 Ill
Eugene Dietzgen Co 2425 N Sheffield Chgo Ill
Keuffel & Esser Co Hoboken N J
L S Starrett Co Athol Mass
Warren Knight Co Philadelphia Pa

LEVELS—carpenter

American Level Mfg Co Detroit Mich
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Empire Level Mfg Co Milwaukee Wis
Mayes Bros Tool Mfg Inc Port Austin Mich
Millers Falls Co Greenfield Mass
Ox-Wall Tool Co 928 Broadway New York 10 N Y
Peerless Level & Tool Co Sterling Ill
Sands Level & Tool Co Detroit Mich
The Stanley Wks New Britain Conn (272)
L S Starrett Co Athol Mass

LEVELS—surveyors

Eugene Dietzgen Co 2425 N Sheffield Chgo Ill
Warren Knight Co Philadelphia 7 Pa
L S Starrett Co Athol Mass

Number in parenthesis indicates page on which advertisement appears

LIFTS—lumber

American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
Dallas Machine & Locomotive Works Dallas Ore
Grand Rapids Vapor Kiln Inc Grand Rapids Mich
Hyster Co Portland 8 Ore & Peoria 1 Ill
Joyce-Cridland Co Dayton 3 Ohio
Leitelt Iron Wks Grand Rapids Mich (408)
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Rotary Lift Co 1051 Kentucky St Memphis 2 Tenn
Standard Dry Kiln Co P O Box 544 Indianapolis Ind

LIFTS—sash

American Cabinet Hdwe Corp Rockford Ill (285)
Barrows Lock Works North Chicago Ill (301)
Champion Hdwe Co Geneva O
P & F Corbin New Britain Conn
Erco Mfg Co 4010 W Montrose Av Chicago 41 Ill
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty Co Inc Philadelphia 40 Pa
L F Grammes & Sons Inc 396 Union Allentown Pa
Griffin Mfg Co Erie Pa
H B Ives Co New Haven Conn
Lawrence Bros Sterling Ill
McKinney Mfg Co Pittsburgh Pa
National Brass Co Grand Rapids Mich
National Mfg Co Sterling Ill
National Hardware Co 86-30 103rd Av New York N Y
Norwalk Lock Co 395 Broadway NY 13 NY
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn Hdwe Corp Reading Pa
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Shelby Metal Prods Co Shelby O
Shelby Spring Hinge Co Shelby O
The Stanley Wks New Britain Conn (272)
Technical Glass Co Inc Los Angeles 11 Calif
Yale & Towne Mfg Co Stamford Conn (269)

LIGHTING—fluorescent

Benjamin Electric Mfg Co Des Plaines Ill
Curtis Lighting Inc 6135 W 65th Chgo 38 Ill
Dazor Mfg Co St Louis Mo
Eagle Electric Mfg Co Inc 23-10 Bridge Plaza So Long Island City 1 N Y
General Electric Co Schenectady 5 N Y
Edwin F Guth Co St Louis 3 Mo
W H Long Co 425 N Clark Chgo Ill
Metalcraft Co 1171 Tremont St Boston 20 Mass
Albert Sechrist Mfg Co Denver Colo
Superior Plastic Co 426 N Oakley Chicago Ill
Tennessee Valley Associates Inc Nashville 3 Tenn
Ultramer Mfg Co 303 W Monroe Chgo Ill
Westinghouse Electric Corp 306 Fourth Av Pittsburgh 30 Pa (331)

LIGHTING FIXTURES

Associated Projects Co Columbus 15 Ohio
Benjamin Electric Mfg Co Des Plaines Ill
Curtis Lighting Inc 6135 W 65th Chgo 38 Ill
Dazor Mfg Co St Louis Mo
Diehl Mfg Co 1124 Finderne Av Somerville NJ
Edwin F Guth Co St Louis Mo
Graybar Electric Co Inc Graybar Bldg NY NY
Miller Co Meriden Conn
Pacific Coast Electrical & Supply Co Los Angeles Cal
Pryne & Co Inc Los Angeles 54 Cal (recessed)
Albert Sechrist Mfg Co Denver Colo
Superior Plastic Co 426 N Oakley Chicago Ill
United Lighting Fixture Co San Francisco Cal
Westinghouse Electric Corp 306 Fourth Av Pittsburgh 30 Pa (331)

LIGHTING SYSTEMS & EQUIPMENT

Buda Co Harvey Ill
Davey Compressor Co Kent O
Dazor Mfg Co St Louis Mo
Delco Appliance Div Gen'l Motors Sales Corp Rochester N Y
Eagle Electric Mfg Co Inc 23-10 Bridge Plaza So Long Island City 1 N Y
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
General Electric Co Schenectady 5 N Y
Edwin F Guth Co St Louis 3 Mo
Homelite Corp Port Chester N Y
Jacobs Wind Elec Co Inc Minneapolis Minn
Kato Engineering Co Mankato Minn
Kohler Co Kohler Wis
Phelps Power & Light Co Rock Island Ill
Pioneer Gen-E-Motor Corporation 5841 W Dickens Chgo 39 Ill
Universal Motor Co Oshkosh Wis
Westinghouse Electric Corp 306 Fourth Av Pittsburgh 30 Pa (331)
Wincharger Corp Sioux City Ia
Winpower Mfg Co Newton Iowa
Witte Engine Works Div of Oil Well Supply Co Kansas City 3 Mo

LIGHTNING RODS

American Lightning Rod Co Lincoln Neb
Burkett Lightning Rod Co Fremont Ohio
Dooley Lightning Rod Co Topeka Kan
Electra Protection Co Inc Albany NY
Independent Protection Co Inc Goshen Ind
Mast Lightning Conductor Co Columbus Ohio
Ohio Lightning Rod Co West Milton O
Robbins Lightning Protection Co Maryville Mo
West Dodd Lightning Conductor Corp 1457 W Norwood Chicago Ill

LIME—agricultural

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Henry Cowell Lime & Cement Co San Francisco Cal
Gibsonburg Lime Prods Co Gibsonburg O
Kelley Island Lime & Transport Co 1122 Leader Bldg Cleveland 14 Ohio
Louisville Cement Co Inc 315 Guthrie Louisville 2 Ky
Mission Lime Prods Corp Los Angeles Cal
National Gypsum Co Buffalo N Y (198-199)
National Lime & Stone Co Findlay O
National Mortar & Supply Co Pittsburgh Pa
Ohio Hydrate & Supply Co Woodville O
Pittsburgh Plate Glass Co Pittsburgh 19 Pa
Sealcon Products Inc Minneapolis 2 Minn
Standard Lime & Stone Co Baltimore Md
United States Gypsum Co 300 W Adams Chgo Ill
Woodville Lime Prods Co Toledo O

LIME—finishing

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Henry Cowell Lime & Cement Co 2 Market San Fran 11 Cal
Fairmont Wall Plaster Co Fairmont W Va
Gibsonburg Lime Prods Co Gibsonburg O
Kelley Island Lime & Transport Co 1122 Leader Bldg Cleveland 14 Ohio
Mission Lime Prods Corp Los Angeles Cal
National Gypsum Co Buffalo N Y (198-199)
National Lime & Stone Co Findlay O
National Mortar & Supply Co Pittsburgh Pa
Ohio Hydrate & Supply Co Woodville O
Sealcon Products Inc Minneapolis 2 Minn
United States Gypsum Co 300 W Adams Chgo Ill
Woodville Lime Prods Co Toledo O

LIME—masons hydrated

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Fairmont Wall Plaster Co Fairmont W Va
Gibsonburg Lime Prods Co Gibsonburg O
Kelley Island Lime & Transport Co 1122 Leader Bldg Cleveland 14 Ohio
Louisville Cement Co Inc 315 Guthrie Louisville 2 Ky
Marblehead Lime Co 160 N LaSalle Chgo Ill
Mission Lime Prods Corp Los Angeles Cal
National Gypsum Co Buffalo N Y (198-199)
National Lime & Stone Co Findlay O
National Mortar & Supply Co Pittsburgh Pa
Ohio Hydrate & Supply Co Woodville O
Sealcon Products Inc Minneapolis 2 Minn
United States Gypsum Co 300 W Adams Chgo Ill
Woodville Lime Prods Co Toledo O

LIME—pebble

Kelley Island Lime & Transport Co 1122 Leader Bldg Cleveland 14 Ohio
Louisville Cement Co Inc 315 Guthrie Louisville 2 Ky
Marblehead Lime Co 160 N LaSalle Chgo Ill
Mission Lime Products Corp Los Angeles 12 Cal
National Gypsum Co Buffalo N Y (198-199)
U S Gypsum Co 300 W Adams Chgo 6 Ill

LINING POLES—surveying

Chicago Steel Tape Co 7956 S Chicago Av Chgo 17 Ill
Eugene Dietzgen So 2425 N Sheffield Av Chgo Ill
Kueffel & Esser Hoboken N J
Frederick Post Co 155 E Ohio Chgo Ill
L S Starrett Co Athol Mass

LINOLEUM

Paraffine Companies Inc San Francisco Cal
Armstrong Cork Co Lancaster Pa
Congoleum-Nairn Inc Kearny N J
Delaware Floor Products Inc Wilmington Del

LINTELS—steel

Adams Co Dubuque Ia
Bennett-Ireland Norwich NY (264)
Decatur Iron & Steel Co Decatur Ala
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Gabriel Steel Co Detroit 12 Mich
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
St Paul Foundry & Mfg Co St Paul 3 Minn
Truscon Steel Co Youngstown 1 O
Vento Steel Products Co Inc Buffalo 15 N Y

LOCKERS

All-Steel Equipment Co Aurora Ill
Curtis Cos Inc Clinton Ia
Lyon Metal Prod Inc Aurora Ill
Narragansett Machine Co Providence 1 RI
Republic Steel Corp Cleveland 1 Ohio
F P Smith Wire & Iron Works Inc 2346 N Clybourn Av Chicago 14 Ill
Universal Steel Equipment Corp 135 W 23rd NY NY

LOCKS—door

Allied Hardware Corp 328 Grand Av Brooklyn 5 N Y (300)
Barrows Lock Works North Chicago Ill (301)
Bemis & Call Co Springfield Mass
Best Universal Lock Co 10 No Senate Indianapolis 4 Ind
J Chesler & Sons Co 41 Varick Av Brooklyn NY
P & F Corbin Co New Britain Conn
Eberhard Mfg Co Div Eastern Malleable Iron Co Cleveland 4 Ohio
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Inc Philadelphia 40 Pa
Independent Lock Co Fitchburg Mass
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
Norwalk Lock Co 395 Broadway NY 13 NY
Pacific Plastic & Mfg Co Inc Los Angeles Cal
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (sliding door) (291)
Penn Hdwe Co Reading Pa
Reading Hdwe Co Reading Pa
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Russell & Erwin Div The American Hdw Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sargent & Co New Haven Conn (295)
Schlage Lock Co San Francisco 19 Cal
Segal Lock & Hdwe Co Inc 395 Broadway NY 13 NY
Duncan Shaw Corp 33 W 42nd St New York 18 N Y
Slaymaker Lock Co Lancaster Pa
Sun Metal Products 221 N La Salle St Chicago Ill
Wayne Mfg Co Detroit 10 Mich
Yale & Towne Mfg Co Stamford Conn (269)

Number in parenthesis indicates page on which advertisement appears

LOCKS—sash

American Cabinet Hdwe Corp Rockford Ill (285)
Barrows Lock Works North Chicago Ill (301)
P & F Corbin New Britain Conn
W H Fabry Mfg Co Inc Alhambra Cal
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Inc Philadelphia Pa
Independent Lock Co Fitchburg Mass
Lafayette Metal Products Co Oakland Cal
Latch Lock Mfg Co St Paul 4 Minn (storm & screen)
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
McKinney Mfg Co Pittsburgh Pa
National Brass Co Grand Rapids Mich
National Hardware Co 86-30 103rd Av NY NY
National Lock Co Rockford Ill (293)
National Mfg Co Sterling Ill
Norwalk Lock Co 395 Broadway NY 13 NY
Penn Hdwe Co Reading Pa
Reading Hdwe Corp Reading Pa
Russell & Erwin Div The American Hdw Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sargent & Co New Haven Conn (295)
Duncan Shaw Corp 33 W 42nd St New York 18 N Y
Shelby Metal Prods Co Shelby O
Shelby Spring Hinge Co Shelby O
Slaymaker Lock Co Lancaster Pa
Yale & Towne Mfg Co Stamford Conn (269)

LOCKS—tubular

Allied Hardware Corp 328 Grand Av Brooklyn 5 N Y (300)
Barrows Lock Works North Chicago Ill (301)
Best Universal Lock Co 10 No Senate Indianapolis 4 Ind
J Chesler & Sons 41 Varick Av Brooklyn N Y
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Lockwood Hardware Mfg Co Fitchburg Mass (270)
National Brass Co Grand Rapids Mich
National Hardware Co 86-30 103rd Av NY NY
Penn Hdwe Co Reading Pa
Reading Hdwe Corp Reading Pa
Russell & Erwin Div The American Hdw Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sargent & Co New Haven Conn
Duncan Shaw Corp 33 W 42nd St New York 18 N Y
Technical Glass Co Inc Los Angeles 11 Cal
Yale & Towne Mfg Co Stamford Conn (269)

LOG CABIN SIDING

(See lumber section beginning page (479)

LOG LOADERS

Allis-Chalmers Mfg Co Milwaukee Wis (398)
American Hoist & Derrick Co St Paul 1 Minn
American Mfg Co Inc Tacoma 2 Wash (404)
Clyde Iron Works Inc Duluth 1 Minn
Cunningham Mchy Co Shreveport La (398)
Drott Mfg Corp Milwaukee 9 Wis
Filer & Stowell Co Milwaukee Wis
Hesse-Ersted Iron Works Portland Ore
Hyster Co Portland 8 Ore & Peoria 1 Ill
Jeffrey Mfg Co Columbus Ohio
Lidgerwood Mfg Co Elizabeth B N J
Link-Belt Co 300 W Pershing Rd Chgo 9 Ill
Taylor Machine Works Louisville Miss (combination loader & skidder)
Washington Iron Works Seattle 4 Wash
The Wheland Co Chattanooga 2 Tenn

LOG SKIDDERS

Clyde Iron Works Inc Duluth 1 Minn
Dorsey Trailers Elba Ala (403)
Drott Mfg Corp Milwaukee 9 Wis
Hyster Co Portland 8 Ore & Peoria 1 Ill
Lidgerwood Mfg Co Elizabeth B N J
Lindsey Wagon Co Laurel Miss
Taylor Machine Works Louisville Miss (combination loader & skidder)
Washington Iron Works Seattle 4 Wash

LOG SKIDDERS—two wheel, self loading

Lindsey Wagon Co Laurel Miss

LOG TURNERS

Allis-Chalmers Mfg Co Milwaukee Wis (398)
American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
Corinth Machinery Co Corinth Miss (388)
Corley Mfg Co Chattanooga 1 Tenn
Cunningham Mchy Co Shreveport La (398)
A B Farquhar Co York Pa
The Filer & Stowell Co Milwaukee 7 Wis
Lane Mfg Co Montpelier Vermont (404)
Soule Steam Feed Wks Meridian Miss
The Wheland Co Chattanooga 2 Tenn

LOGGING ARCHES

Hyster Co Portland 8 Ore & Peoria 1 Ill
Isaacson Iron Wks Seattle Wash

LOGGING SULKIES

Hyster Co Portland 8 Ore & Peoria 1 Ill
Washington Iron Works Seattle 4 Wash

LOGS—structural for cabins & interior paneling

Fence Co of America 608 S Dearborn St Chicago 5 Ill (322)
Mac Gillis & Gibbs Milwaukee 2 Wis (interior log paneling)

LOUVRES—attic ventilating

Air Control Products Inc Coopersville Mich (101)
Arr-O-Line Manufacturers Minneapolis 8 Minn (246)
Bilco Mfg Co New Haven 6 Conn
Carr Adams & Collier Co Dubuque Ia (131)
Clay Equipment Corp Cedar Falls Iowa
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Curtis Cos Inc Clinton Ia
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Fordyce-Crossett Sales Co Fordyce Ark
Gedge Bros Steel Roofing Co Anderson Ind
Gregg & Son Nashua N H (125)
Milcor Steel Co Milwaukee 4 Wis (319)
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Roach-Musser Co Muscatine Ia
George J Silbernagel 8 S Michigan Av Chgo 3 Ill
The Swartwout Co Cleveland 12 Ohio (254)

LUMBER BUGGIES

Corley Mfg Co Chattanooga 1 Tenn
Electric Wheel Co Quincy Ill
Nutting Truck & Caster Co Faribault Minn

LUMBER CARRIERS

Dallas Mach & Locomotive Wks Dallas Ore
Hyster Co Portland 8 Ore & Peoria 1 Ill
Pointer-Willamette Co Portland 5 Ore
Ross Carrier Co Benton Harbor Mich
Silent Hoist & Crane Co 860 63rd St Brooklyn 20 N Y (402)

LUMBER MAILING LISTS

Lumbermen's Credit Assn Inc 608 S Dearborn St Chicago 5 Ill (385)

LUMBER PILERS

American Mfg Co Inc Tacoma 2 Wash (404)
Bradley Machine Co Inc Middletown N Y
Hyster Co Portland 8 Ore & Peoria 1 Ill
Leavenworth Mfg Co Leavenworth Wash

LUMBER TREATING

American Creosoting Co Inc Louisville Ky
American Lumber & Treating Co 332 S Michigan Av Chgo Ill (65)
Atlantic Creosoting Co Inc 17 Battery Pl NY NY
Crosby Lbr & Mfg Co Crosby Miss
Cuprinol Inc 7 Water St Boston 9 Mass
Eppinger & Russell Co 80 8th NY N Y
Florida Wood Preserving Co Pensacola Fla
Fordyce-Crossett Sales Co Fordyce Ark
Forest Products Treating Co Portland 5 Ore
Frost Lumber Industries Inc Shreveport 90 La
Gulf States Creosoting Co Hattiesburg Miss
Gulfport Creosoting Co Gulfport Miss
Indiana Wood Preserving Co Terre Haute Ind
International Creosoting & Construction Co Galveston Tex
Iowa Wood Preserving Co 29 E Madison Chgo Ill
Keystone Wood Preserving Co Philadelphia Pa
Koppers Company Inc Wood Preserving Div Pittsburgh 19 Pa
Long-Bell Lbr Co Kansas City Mo
McKeown Bros Co 5235 S Keeler Av Chgo Ill
Wm C Meredith Co Inc Atlanta Ga
T R Miller Mill Co Inc Brewton Ala
National Pole & Treating Co Minneapolis Minn
Nebraska Bridge Supply & Lumber Co Omaha 5 Neb
Pope & Talbot Inc Lbr Div Portland Ore
Protection Products Mfg Co Kalamazoo Mich (68)
Protexol Corp 40 Market St Kenilworth N J (18)
Republic Creosoting Co Indianapolis 4 Ind
Solvay Sales Corp 40 Rector New York 6 N Y
Southern Wood Preserving Co Atlanta Ga
Southwestern Creosoting Co Muskogee Okla
Taylor-Colquitt Co Spartanburg S C
Texas Creosoting Co Orange Tex (53)
West Coast Wood Preserving Co Seattle Wash
Wood Treating Chemicals Co St Louis Mo
Wyandotte Chemicals Corp Wyandotte Mich

MACHINERY—box & crate

American Saw Mill Machinery Co Hackettstown N J
Beach Mfg Co Montrose Pa
Chase Turbine Mfg Co Orange Mass
Chattanooga Mchy Co Chattanooga Tenn
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
The Master Woodworker Mfg Co Inc 409 E Fort Detroit 26 Mich
Palmer Mchy Co Jacksonville Fla
Prescott Co Menominee Mich
Saranac Industries Benton Harbor Mich
Baxter D Whitney & Son Inc Winchendon Mass
S A Woods Machine Co Boston 27 Mass

MACHINERY—excelsior making

Crescent Excelsior Machinery Co Indianapolis Ind
Indianapolis Excelsior Machinery Co Indianapolis Ind
Lewis T Kline Co Alpena Mich
Mitts & Merrill Saginaw Mich

MACHINERY—logging

American Mfg Co Inc Tacoma 2 Wash (404)
Chase Turbine Mfg Co Orange Mass
Hyster Co Portland 8 Ore & Peoria 1 Ill
Jeffrey Mfg Co Columbus 16 Ohio
Lidgerwood Mfg Co Elizabeth N J
Pointer-Willamette Co Portland 5 Ore
Taylor Machine Works Louisville Miss
Washington Iron Works Seattle 4 Wash

MACHINERY—planing mill

American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
American Saw Mill Machinery Co Hackettstown N J
Beach Mfg Co Montrose Pa
Buss Machine Wks Holland Mich
Chase Turbine Mfg Co Orange Mass
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
R N Fenton Co 1960 E Milwaukee Detroit Mich (408)
Hyster Co Portland 8 Ore & Peoria 1 Ill
Mattison Mach Wks Rockford Ill
McDonough Mfg Co Eau Claire Wis
Stetson-Ross Mach Co Seattle 4 Wash

Number in parenthesis indicates page on which advertisement appears

Vonnegut Moulder Corp Indianapolis Ind
Baxter D Whitney & Son Inc Winchendon Mass
S A Woods Machine Co Boston 27 Mass
Yates-American Mach Co Beloit Wis

MACHINERY—sawmill

Allis-Chalmers Mfg Co Milwaukee Wis (398)
American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
American Saw Mill Machinery Co Hackettstown N J
Bennett-Ireland Norwich N Y (264)
Corley Mfg Co Chattanooga Tenn
Corinth Machinery Co Corinth Miss (388)
Cunningham Mchy Co Shreveport La (398)
Enterprise Co Columbiana Ohio (408)
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
The Filer & Stowell Co Milwaukee 7 Wis
Frick Co Waynesboro Penna
Gordon Hollow Blast Grate Co Greenville Mich
R R Howell Co Minneapolis 14 Minn
Hyster Co Portland 8 Ore & Peoria 1 Ill
Kent Mach Co Cuyahoga Falls O (407)
Lane Mfg Co Montpelier Vt (404)
McDonough Mfg Co Eau Claire Wis
Mitts & Merrill Saginaw Mich
D J Murray Mfg Co Wausau Wis
Prescott Co Menominee Mich
Wheland Co Chattanooga Tenn
Wickes Bros Saginaw Mich
S A Woods Machine Co Boston 27 Mass

MACHINERY—sawmill, portable

American Saw Mill Mchy Co Hackettstown N J
Bennett-Ireland Inc Norwich N Y (264)
Corinth Machinery Co Corinth Miss (388)
Corley Mfg Co Chattanooga 1 Tenn
Cunningham Machinery Co Shreveport La (398)
Enterprise Co Columbiana Ohio (408)
A B Farquhar Co York Pa
Frick Co Waynesboro Penna
Hyster Co Portland 8 Ore & Peoria 1 Ill
Kent Machine Co Cuyahoga Falls O (407)
Lane Mfg Co Montpelier Vt (404)
Wheland Co Chattanooga Tenn

MACHINERY—shingle

American Saw Mill Mchy Co Hackettstown N J
Chase Turbine Mfg Co Orange Mass
Lane Mfg Co Montpelier Vt (404)
Prescott Co Menominee Mich

MACHINERY—veneer & plywood

American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
Beach Mfg Co Montrose Pa
Black Bros Co Inc Mendota Ill
Handy Mfg Co 2432 W Lawrence Chgo Ill
Merritt Eng & Sales Co Lockport N Y

MACHINERY—wood flour

Allis-Chalmers Mfg Co Milwaukee 1 Wis (398)
Bauer Bros Co Springfield Ohio
Pulverizing Machinery Co Summit N J
Williams Patent Crusher & Pulverizer Co St Louis Mo

MACHINERY—woodworking

American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
American Saw Mill Mchy Co Hackettstown N J
Beach Mfg Co Montrose Pa
Boice Crane Co Toledo 6 Ohio
Buss Machine Wks Holland Mich
Chase Turbine Mfg Co Orange Mass
Chattanooga Mchy Co Chattanooga Tenn
Circo Tool Co Milwaukee 3 Wis
C K L Machinery Co Oshkosh Wis
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Crescent Machine Co Leetonia O
Defiance Mach Wks Defiance O
Delta Mfg Co Milwaukee 1 Wis
Ekstrom, Carlson & Coe Rockford Ill
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
R N Fenton Co 1960 E Milwaukee Detroit Mich (408)
Greenlee Bros & Co Rockford Ill
Handy Mfg Co 2432 W Lawrence Chgo Ill
E & B Holmes Mchy Co Buffalo N Y
Jenkins Mchy Co Sheboygan Falls Wis
Lane Mfg Co Montpelier Vermont (404)
Mail Tool Co 7733 S South Chicago Av Chgo Ill (283)
The Master Woodworker Mfg Co Inc Detroit 26 Mich
Mattison Machine Works Rockford Ill
Muskegon Mach Co Newburgh N Y
Newman Mach Co Greensboro N C
Oliver Machinery Co Grand Rapids 2 Mich
Onsrud Mach Wks Inc 3910 W Palmer Chgo Ill
Parks Woodworking Mach Co Cincinnati O
Paxson Co Dowagiac Mich
Porter Cable Mach Co Syracuse N Y
C O Porter Mchy Co Grand Rapids Mich
Red Star Products Inc Cleveland O (392-393)
St Paul Foundry & Mfg Co St Paul 3 Minn
Stetson-Ross Mach Co Seattle Wash
Vonnegut Moulder Corp Indianapolis 2 Ind
Walker Turner Co East Plainfield N J
J D Wallace & Co 153 S California Av Chicago 12 Ill
Baxter D Whitney & Son Inc Winchendon Mass
S A Woods Machine Co Boston 27 Mass
Yates-American Mach Co Beloit Wis

MACHINERY—woodworking, homecraft

Boice Crane Co Toledo 6 Ohio
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Delta Mfg Co Milwaukee 1 Wis
The Master Woodworker Mfg Co Inc Detroit 26 Mich
Parks Woodworking Mach Co Cincinnati O
St Paul Foundry & Mfg Co St Paul 3 Minn
The Wellman Products Co Cleveland 3 O

MACHINES—floor waxing & polishing

American Floor Surfacing Machine Co Toledo 3 Ohio (208)
Atlas Floor Surfacing Mach Corp 248 E 34th NY 16 NY
Fay Floor Mach Co 279 Fifth Av NY NY
Finnell System Inc Elkhart Ind
Gen'l Floorcraft Inc 333 Sixth Av NY NY
Hild Floor Machine Co 1313 W Randolph St Chicago 1 Ill
Hilger Co St Cloud Minn
Holt Mfg Co Oakland Cal
Kent Co Inc Rome N Y
Landers Frary & Clark New Britain Conn
Lincoln-Schlueter Floor Mchy Co 512 S Peoria Chicago Ill
Porter Cable Machine Co Syracuse N Y

MACHINES—lumber piling

American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
Bradney Machine Co Inc Middletown N Y
Hyster Co Portland 8 Ore & Peoria 1 Ill
Johnson Mfg Co Seattle Wash
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Silent Hoist & Crane Co 860 63rd St Brooklyn 20 N Y (402)

MACHINES—unit lumber piling

American Mfg Co Inc Tacoma 2 Wash (404)
Hyster Co Portland 8 Ore & Peoria 1 Ill
Ross Carrier Co Benton Harbor Mich

MAIL BOXES-built-in, residence & apartment

American Device Mfg Co Red Bud Ill
Geo F Collins & Co Sapulpa Okla
Columbia Metal Box Co 260 E 143rd St New York 51 N Y
P & F Corbin New Britain Conn
Dayton Pattern & Mfg Co Dayton O
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Mail Safe Mfg Co St Paul 4 Minn
Metal Prod Corp West Haven Conn
McKinney Mfg Co Pittsburgh Pa
Northwestern Products Co St Louis 3 Mo
Penn-Greg Mfg Co Minneapolis 3 Minn
Slaymaker Lock Co Lancaster Pa
Southern Wire & Iron Works Atlanta Ga

MANTELS—wood

Angel Novelty Co Fitchburg Mass
The Brecher Co Louisville Ky
Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Columbia Mantel Co Inc 845 S 9th Louisville 3 Ky
Curtis Cos Inc Clinton Ia
Gregg and Son Nashua N H (125)
Ideal Co Box 889 Waco Tex
Marquart Millwork Co Oshkosh Wis (139)
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
The Radford Co Oshkosh Wis
The Readybuilt Products Co 1707 McHenry Baltimore 23 Md
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Works Rock Island Ill
Segelke & Kohlhaus Co La Crosse Wis
Frank C Snedaker & Co Inc Philadelphia 40 Pa

MASONS' SUPPLIES

Acme Tool Works Inc Seattle Wash
J A Fay & Egan Co Cincinnati Ohio
Henry Disston & Sons Inc Philadelphia 35 Pa
Huther Bros Saw Mfg Co Inc Rochester N Y
M & M Wire Clamp Co Minneapolis Minn
Fayette R Plumb Inc Philadelphia 37 Pa
Stanley Tools New Britain Conn (272)
The Robinson Clay Product Co Akron 8 Ohio
United States Gypsum Co 300 W Adams Chgo 6 Ill
Vaughan & Bushnell Mfg Co 135 S LaSalle Chgo Ill

MESH—wire

American Steel & Wire Co Cleveland O (309)
Chase Brass & Copper Co Waterbury 91 Conn
Colorado Fuel & Iron Corp Denver 1 Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Cyclone Fence Div American Steel & Wire Co P O Box 260 Waukegan Ill
Keystone Steel & Wire Co Peoria Ill
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh 30 Pa
Republic Steel Corp Cleveland 1 Ohio
F P Smith Wire & Iron Works Inc 2346 N Clybourn Av Chicago 14 Ill
Southern Wire & Iron Wks 441 Memorial Dr S E Atlanta Ga
Tennessee Coal Iron & RR Co Birmingham Ala (309)
Truscon Steel Co Youngstown Ohio

METERS—feed water

Brown Instrument Co 4419 Wayne Av Philadelphia 44 Pa
Foxboro Co Foxboro Mass
Neptune Meter Co 50 W 50th New York 20 N Y
Republic Flow Meters Co 2240 W Diversey Chgo Ill
Taylor Instrument Co Rochester 1 N Y

METERS—steam

American Meter Co 60 E 42nd NY NY
The Bristol Co Waterbury 91 Conn
Brown Instrument Co 4419 Wayne Av Philadelphia 44 Pa
Foxboro Co Foxboro Mass
Republic Flow Meters Co 2240 W Diversey Chgo Ill
Taylor Instrument Co Rochester 1 N Y

MICROMETERS

Brown & Sharpe Mfg Co 235 Promenade St Providence 1 R I
The Lufkin Rule Co Saginaw Mich
Millers Falls Co Greenfield Mass

Number in parenthesis indicates page on which advertisement appears

MILLING IN TRANSIT

Bradley Miller & Co Bay City Mich
California Wood Products Co Pomona Calif
Corinth Planing Mill Co Corinth Miss (72)
Foshee Lumber Co Montgomery Ala
Hallack & Howard Lumber Co Denver 1 Colo
Jas E Stark Co Memphis Tenn
Tacoma Lumber Fabricating Co Tacoma 1 Wash

MIRRORS—bathroom, kitchen

Acme Specialty Mfg Co Toledo O
Semon Bache & Co 636 Greenwick New York 14 N Y
Belknap Glass Co Seattle 1 Wash
Conant Bros Co Boston 14 Mass
Conroy-Prugh Glass Co Pittsburgh Pa
Dearborn Glass Co 2414 W 21st St Chicago 8 Ill
Excel Metal Cabinet Co Jamestown NY
Forman Ford & Co Minneapolis 1 Minn
F H Lawson Co Cincinnai 4 Ohio (bathroom only)
Libbey-Owens-Ford Glass Co Toledo O (155-158)
Miami Cabinet Div Philip Carey Mfg Co Middletown O
National Mirror Works Rockford Ill
The Nurre Cos Inc Bloomington Ind
Chas Parker Co Meriden Conn
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Standard Mirror Co 141 Milton Buffalo 10 NY
Toledo Plate & Window Glass Co Toledo 2 Ohio

MIRRORS—decorative

Art Mirror & Glass Specialty Co 312 N May Chgo Ill
Semon Bache & Co 636 Greenwich NY NY
Belknap Glass Co Seattle 1 Wash
Borin Art Prod Corp 666 N Lake Shore Dr Chgo Ill
Century Mirror Corp 1521 W 35th Chgo Ill
Dearborn Glass Co 2414 W 21st Chicago 8 Ill
Forman Ford & Co Minneapolis 1 Minn
W P Fuller & Co 301 Mission San Fran 19 Cal
Libbey-Owens-Ford Glass Co Toledo O (155-158)
Nat'l Mirror Wks Rockford Ill
The Nurre Cos Inc Bloomington Ind
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Standard Mirror Co 141 Milton Buffalo 10 NY
Toledo Plate & Window Glass Co Toledo 2 Ohio
Warren Co Atlanta Ga

MIXERS—concrete, mortar, etc.

Besser Mfg Co Alpena Mich
Chain Belt Co Milwaukee 4 Wis
Construction Machinery Co Waterloo Iowa
Essick Manufacturing Co 1950 Santa Fe Av Los Angeles Cal
Jaeger Mach Co Columbus O
Kent Machine Co Cuyahoga Falls Ohio (407)
Koehring Co Milwaukee Wis
Lansing Co Lansing Mich
Multiplex Concrete Machinery Co Elmore Ohio
Ransome Machinery Co Sub of Worthington Pump & Machinery Corp Dunnellen N J
T L Smith Co Milwaukee Wis
Stearns Mfg Co Inc Adrian Mich
Swift Mfg Co Waterloo Iowa
U S-Challenge Co Batavia Ill

MODEL HOUSES—miniature

Curtis Cos Inc Clinton Ia (kitchens)
The Homes Center 720 Washington Av SE Minneapolis Minn
National Plan Service 1315 W Congress Chicago Ill

MOISTURE INDICATORS

American Instrument Co Washington D C
L R Bradley & Co 25 W 45th St New York 19 N Y (396)
Colloid Equipment Co Inc 50 Church St New York 7 N Y
General Electric Co Schenectady 5 N Y
Kaydel Moisture Gauges 126 Liberty St New York 6 N Y (410)
Measurements Corp Boonton N J
Moisture Register Co 133 N Garfield Alhambra Calif (406)
Portable Products Corp C J Tagliabue Div Park & Nostrand Brooklyn 5 NY
Taylor Instrument Companies Rochester 1 N Y

MOPS—dust & polish

Algoma Mfg Co Algoma Wis
American Standard Mfg Co 2509 S Green Chgo Ill
Barlow Co Inc Waterbury Conn
Boyle-Midway Inc Jersey City 2 N J (182)
Dustmaster Corp Minneapolis Minn
J I Holcomb Mfg Co Indianapolis 7 Ind
Howard Dustless Duster Co Boston 10 Mass
Hygenia Brush Co Worcester Mass
Illinois Duster & Brush Co 1926 Webster Av Chgo 14 Ill
Lasting Mop & Broom Co Evansville Ind
O-Cedar Corp 2246 W 49th Chgo 9 Ill
The Pioneer Mfg Co Cleveland 4 Ohio
Rubon Woodfinishing & Prod Co Kansas City Mo
Silver-Chamberlin Co Clayton N J
L M Thornton Mfg Co Kansas City Mo
Tu-Way Prod Co Detroit Mich
Wm D Whitaker Philadelphia Pa

MORTAR—masonry

Colorado Portland Cement Co Denver 2 Colo
Huron Portland Cement Co Detroit 26 Mich
Louisville Cement Co Inc 315 Guthrie Louisville 2 Ky
Nat'l Lime & Stone Co Findlay O
National Mortar & Supply Co Pittsburgh Pa.
Ohio Hydrate & Supply Co Woodville O
Riverton Lime & Stone Co Inc Riverton Va
X-Pando Corp 43-15 36th Long Island City 1 N Y

MORTAR MIX

Adel Clay Prod Co Des Moines Ia
Laclede-Christy Clay Prod Co St Louis Mo
Lehigh Sewer Pipe & Tile Co Ft Dodge Ia
National Mortar & Supply Co Pittsburgh Pa
Purington Paving Brick Co Galesburg Ill
Rand-Williams Mfg Co Inc 377 Broadway New York 13 N Y
Walsh Refractories Corp St Louis Mo
What Cheer Clay Products Co What Cheer Iowa
Willamina Clay Prod Co Portland Ore

MOTORS—electric

Allis-Chalmers Mfg Co Milwaukee Wis (308)
Beach Mfg Co Montrose Pa
Boice Crane Co Toledo 6 Ohio
Century Electric Co 1806 Pine St St Louis 3 Mo
Delco Appliance Div Gen Motor Sales Corp Rochester N Y
Diehl Mfg Co 1124 Finderne Av Somerville N J
Emerson Elec Mfg Co St Louis Mo
Fairbanks Morse & Co 600 S Michigan Av Chicago Ill
General Electric Co Schenectady N Y
Hamilton Beach Co Div Scoville Mfg Co Racine Wis
Kato Engineering Co Mankato Minn
Leland Elec Co Dayton O
Lincoln Elec Co Cleveland O
Peerless Elec Co Warren Ohio
Reynolds Electric Co 2650 W Congress Chgo 12 Ill
Robbins & Myers Co Springfield O
Russell Elec Co 378 W Huron Chgo Ill
Signal Elec Mfg Co Menominee Mich
F A Smith Mfg Co Inc Rochester 2 N Y
Victor Elec Prod Co Cincinnati O (333)
Wagner Electric Corp St Louis 14 Mo
Westinghouse Electric Corp 306 Fourth Av Pittsburgh 30 Pa (331)
S A Woods Machine Co Boston 27 Mass

MOULDINGS—metal

Aluminum Co of America Pittsburgh Pa (136-137)
American Brass Co Waterbury Conn
Ames Metal Moulding Co Inc 228 E 144th St New York 51 N Y
B & T Metals Co Columbus 16 O
Barclay Mfg Co 385 Gerard Av Bronx NY
Brasco Mfg Co Harvey Ill
Chase Brass & Copper Co Waterbury Conn
Chicago Metallic Sash Co 2112 Ogden Av Chicago 12 Ill
W J Dennis & Co 1732 N Kolmar Av Chgo 39 Ill
Ford Metal Moulding Co 329 E 45th NY NY (80)
Gibbs Boardtile Corp 636D N Aberdeen Chgo Ill
Herron-Zimmers Moulding Co Detroit Mich
International Fireproof Door Co Inc 157 Walworth St Brooklyn 5 N Y
Kinkead Industries Inc 450 W Superior Chgo 10 Ill
Knapp Bros Mfg Co Joliet Ill
John Lees Div Serrick Corp Muncie Ind
Loxit Moulding Co 1217 W Washington Blvd Chicago 7 Ill
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Marsh Wall Prod Inc Dover O (192)
Metal Craft Co Detroit Mich
Metal Trims Inc Youngstown 2 Ohio
Milcor Steel Co Milwaukee 4 Wis (319)
Goodloe E Moore Co Danville Ill
Mouldings Inc Indianapolis 2 Ind
National Aluminum Co Columbus Ohio (105)
S Parker Hardware Mfg Corp 27 Ludlow St New York 2 N Y
Penn Supply & Metal Corp Philadelphia 22 Pa
Pittsburgh Plate Glass Co Pittsburgh 19 Pa (151)
Prestile Mfg Co 2860 Lincoln Av Chgo 13 Ill (200)
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
Pyramid Metals Co 1335 N Wells Chgo 10 Ill
Rigid-Tex Corp Buffalo 3 N Y
S & W Moulding Co Columbus 6 Ohio
Samson Products Co 4238 N Leavitt Av Chgo 18 Ill
Standard Moulding Co Inc 33 W 42nd St New York 18 N Y
Trimedge Inc Youngstown Ohio
Tylac Co Monticello Ill
United Industries Inc 231 S LaSalle Chgo Ill
Upson Co Lockport N Y (190)
R D Werner Co Inc 295 Fifth Av New York 16 N Y
Wooster Products Inc Wooster Ohio
Youngstown Manufacturing Inc 66 S Prospect Youngstown 6 Ohio (102)

MOULDINGS—plastic

Herron-Zimmers Moulding Co Detroit Mich
Kinkead Industries Inc 450 W Superior Chgo 10 Ill
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Marsh Wall Prod Inc Dover O (192)
Plastex Trim Corp Columbus 3 Ohio
Presstite Engineering Co St Louis 10 Mo
Prestile Mfg Co 2860 N Lincoln Av Chgo 13 Ill (200)
S & W Moulding Co Columbus 6 Ohio
Superior Plastic Co 426 N Oakley Chicago Ill
Tennessee - Eastman Corp Kingsport Tenn
Youngstown Manufacturing Inc 66 S Prospect Youngstown 6 Ohio (102)

MOULDINGS—wood

Arkansas Oak Flooring Co Pine Bluff Ark
Biles-Coleman Lbr Co Inc Omak Wash (141)
Bradley Lumber Co of Arkansas Warren Ark (211)
C-W Plywood Co 9 S Clinton Chgo Ill
Cole Mfg Co Memphis Tenn
Curtis Companies Inc Clinton Ia
Farley & Loetscher Mfg Co Dubuque Ia
Fordyce-Crossett Sales Co Fordyce Ark
Frost Lumber Industries Shreveport La
General Wood Works Council Bluffs Iowa
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
Ideal Co Box 889 Waco Tex
Keystone Frame & Mfg Co Spokane 3 Wash
G F League Lumber Co Box 125 Greenville S C
Marquart Millwork Co Oshkosh Wis (139)
Marsh Wall Prod Inc Dover O (192)

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Midland Bldg Industries Inc Indianapolis 6 Ind
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Mutual Fir Column Co Tacoma Wash
Nashotah Moulding & Mfg Co Nashotah Wis
Nickey Brothers Co Memphis Tenn
Northwest Door & Plywood Sales Tacoma 1 Wash
Radford & Sanders Inc Baltimore Md
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Wks Rock Island Ill
Segelke & Kohlhaus Co La Crosse Wis
Geo J Silbernagel 8 S Michigan Chgo Ill
Frank C Snedaker & Co Inc Philadelphia 40 Pa
South Bend Dowel Works South Bend Ind
Southern Pine Lumber Co Texarkana Tex
Trimpak Corp 364 North Av New Rochelle N Y
Washington Mfg Co Tacoma 1 Wash
Western Pine Mfg Co Ltd Spokane 7 Wash (49)
White Pine Sash Co Spokane 7 Wash

MULTIPLE WHEEL TRUCK DRIVES

Detroit Automotive Products Corp Detroit 13 Mich (395)
Four Wheel Drive Auto Co Clintonville Wis.
Truckstell Mfg Co Union Commerce Bldg. Cleveland 14 Ohio (405)

NAIL PULLERS

Bridgeport Hardware Mfg Corp Bridgeport Conn
Crescent Tool Co Jamestown N Y
C Drew & Co Kingston Mass
M & M Wire Clamp Co Minneapolis Minn
Union Hardware Co Torrington Conn
Woodings-Verona Tool Works Verona Pa

NAIL SETS

American Swiss File & Tool Co Elizabeth N J
Bridgeport Hdwe Mfg Corp Bridgeport Conn
Brown & Sharpe Mfg Co 235 Promenade St Providence 1 R I
Damascus Steel Prod Corp Rockford Ill
Mayhew Steel Prod Inc Shelburne Falls Mass
McPherson-Huff Tool Co Sabina O
Millers Falls Co Greenfield Mass
Rainey-Tool Co Grove City Pa
The Stanley Works New Britain Conn (272)
L S Starrett Co Athol Mass
Syracuse Twist Drill Co Syracuse N Y
Tuck Mfg Co Brockton Mass
Union Tool Co Orange Mass
Vaughan & Bushnell Mfg Co 135 S La Salle Chgo Ill

NAILS

Alan Wood Steel Co Conshohocken Pa (287)
American Steel & Wire Co Cleveland O (309)
Angell Nail & Chaplet Co Cleveland O
Atlas Tack Corp Fairhaven Mass
Bethlehem Steel Co Bethlehem Pa
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Century Fence Co Waukesha Wis
Colorado Fuel & Iron Corp Denver Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Copperweld Steel Co Glassport Pa
Crescent Brass & Pin Co Detroit Mich
Eastern Nail Company 176 Union Av Providence 9 R I
L F Grammes & Sons Inc Allentown Pa
Illinois Nail Co 826 Peoria Chgo Ill
Independent Nail & Packing Co Bridgewater Mass
Jones & Laughlin Steel Corp Pittsburgh Pa
Keystone Steel & Wire Co Peoria Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Nichols Wire & Steel Co Davenport Iowa (steel & aluminum) (219)
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh Pa
Republic Steel Corp Cleveland 1 Ohio
Sheffield Steel Corp Kansas City Mo
Shelton Tack Co Shelton Conn
Tennessee Coal Iron & R R Co Birmingham Ala (309)
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y
Wilson Steel & Wire Co W 49th and S Western Chgo Ill

NAILS—copper

Alan Wood Steel Co Conshohocken Pa (287)
American Steel & Wire Co Cleveland O (309)
Angell Nail & Chaplet Co Cleveland O
Atlas Tack Corp Fairhaven Mass
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Chase Brass & Copper Co Waterbury Conn
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
L F Grammes & Sons Inc Allentown Pa
C G Hussey & Co Pittsburgh 19 Pa
Igoe Bros 529 Washington Brooklyn N Y
Independent Nail & Packing Co Bridgewater Mass
W H Maze Co Peru Ill
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
Shelton Tack Co Shelton Conn
Steel & Wire Products Co Baltimore Md
Turner & Seymour Mfg Co Torrington Conn

NAILS—cut

Alan Wood Steel Co Conshohocken Pa (287)
Chase Brass & Copper Co Waterbury 91 Conn
Continental Steel Corp Kokomo Ind (313)
W H Maze Co Peru Ill
Northwestern Steel & Wire Co Sterling Ill
Republic Steel Corp Cleveland 1 Ohio
Shelton Tack Co 103 Canal Shelton Conn
Tremont Nail Co Wareham Mass
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y

NAILS—flooring

Alan Wood Steel Co Conshohocken Pa (287)
American Steel & Wire Co Cleveland O (309)
Bethlehem Steel Co Bethlehem Pa
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Century Fence Co Waukesha Wis
Colorado Fuel & Iron Corp Denver 1 Colo
Continental Steel Corp Kokomo Ind (313)
Independent Nail & Packing Co Bridgewater Mass
Keystone Steel & Wire Co Peoria Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Nichols Wire & Steel Co Davenport Iowa (219)
Pittsburgh Steel Co Pittsburgh 30 Pa
Republic Steel Corp Cleveland 1 Ohio
Sheffield Steel Corp Kansas City Mo
Tennessee Coal Iron & R R Co Birmingham Ala (309)
Tremont Nail Co Wareham Mass

NAILS—leadhead

American Steel & Wire Co Cleveland O (309)
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Continental Steel Corp Kokomo Ind (313)
Deniston Co 4856 S Western Av Chgo Ill
Dickson Weatherproof Nail Co Evanston Ill
Eagle-Picher Co Cincinnati 1 Ohio
Klauer Mfg Co Dubuque Iowa
Lyon Conklin & Co Baltimore 30 Md
W H Maze Co Peru Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Republic Steel Corp Republic Bldg Cleveland 1 Ohio
Tennessee Coal Iron & R R Co Birmingham Ala (309)

NAILS—masonry

Continental Steel Corp Kokomo Ind (313)
Hillwood Mfg Co Cleveland 17 Ohio
Independent Nail & Packing Co Bridgewater Mass
Republic Steel Corp Berger Mfg Div. Canton 5 Ohio
Sealcon Products Inc 927 Second Av S Minneapolis 2 Minn
Star Expansion Bolt Co 147 Cedar St New York 6 N Y
Tremont Nail Co Wareham Mass

NAILS—roofing

Alan Wood Steel Co Conshohocken Pa (287)
American Steel & Wire Co Cleveland O (309)
Angell Nail & Chaplet Co Cleveland 5 O
Atlas Tack Corp Fairhaven Mass
Bethlehem Steel Co Bethlehem Pa
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Chase Brass & Copper Co Waterbury Conn
Colorado Fuel & Iron Corp Denver 1 Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Copperweld Steel Co Glassport Pa
Crescent Brass & Pin Co Detroit Mich
Dickson Weatherproof Nail Co Evanston Ill
Jones & Laughlin Steel Corp Pittsburgh Pa
Keystone Steel & Wire Co Peoria Ill
Lyon Conklin & Co Baltimore 30 Md
W H Maze Co Peru Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Nichols Wire & Steel Co Davenport Iowa (steel & aluminum) (219)
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh 30 Pa
Rand-Williams Mfg Co Inc 377 Broadway New York 13 N Y
Republic Steel Corp Republic Bldg. Cleveland 1 Ohio
Sheffield Steel Corp Kansas City Mo
Tennessee Coal Iron & R R Co Birmingham Ala (309)
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y
Wilson Steel & Wire Co 4840 S Western Av Chgo Ill

NAILS—screw type

Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Colonial Brass Co Middleboro Mass
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Deniston Co 4856 S Western Av Chicago 9 Ill
Dickson Weatherproof Nail Co Evanston Ill
John Hassall Inc 402 Oakland Brooklyn N Y
Hillwood Mfg Co Cleveland 17 O
Independent Nail & Packing Co Bridgewater Mass
Manufacturers Screw Prod 222 W Hubbard Chgo 10 Ill
W H Maze Co Peru Ill
Pittsburgh Steel Co Pittsburgh 30 Pa
Republic Steel Corp Republic Bldg Cleveland 1 Ohio

NAILS—shingle

Alan Wood Steel Co Conshohocken Pa (287)
American Steel & Wire Co Cleveland O (309)
Atlas Tack Corp Fairhaven Mass
Bethlehem Steel Co Bethlehem Pa
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Chase Brass & Copper Co Waterbury 91 Conn
Colorado Fuel & Iron Corp Denver 1 Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Crescent Brass & Pin Co Detroit 8 Mich
Independent Nail & Packing Co Bridgewater Mass
Jones & Laughlin Steel Corp Pittsburgh Pa
Keystone Steel & Wire Co Peoria 7 Ill
W H Maze Co Peru Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Nichols Wire & Steel Co Davenport Iowa (steel & aluminum) (219)
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh Pa
Rand-Williams Mfg Co Inc 377 Broadway New York 13 N Y
Republic Steel Corp Republic Bldg Cleveland 1 Ohio
Sheffield Steel Corp Kansas City Mo
Tennessee Coal Iron & Railroad Co Birmingham Ala (309)
Tremont Nail Co Wareham Mass
Wilson Steel & Wire Co 4840 S Western Av Chgo Ill

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NETTING—wire

American Steel & Wire Co Cleveland 13 Ohio (309)
Century Fence Co Waukesha Wis
Colorado Fuel & Iron Corp Denver 1 Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Gilbert & Bennett Mfg Co Blue Island Ill
Indiana Steel & Wire Co Muncie Ind
Keystone Steel & Wire Co Peoria 7 Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Northwestern Steel & Wire Co Sterling Ill
Republic Steel Corp Republic Bldg Cleveland 1 Ohio
Soule Steel Co San Francisco 24 Cal
Tennessee Coal Iron & R R Co Birmingham Ala (309)
Wickwire Bros Cortland N Y (303)

NIPPERS

Champion-De Arment Tool Co Meadville Pa
Crescent Tool Co Jamestown N Y
Damascus Steel Prod Corp Rockford Ill
Heller Brothers Co Newark 4 N J
Lowe Mfg Co Enderlin N D
M & M Wire Clamp Co 983-17th Av S E Minneapolis 14 Minn
Original Enderes Company Guttenberg Iowa
Peck Stow & Wilcox Co Southington Conn
Red Devil Tools Irvington 11 N J (288)
Sandvik Saw & Tool Corp 47 Warren St New York 7 N Y
Starr Bros Bell Co East Hampton Conn
L A Starrett Co Athol Mass
Utica Drop Forge & Tool Corp Utica N Y
Vaughan & Bushnell Mfg Co 135 S LaSalle Chgo Ill

NOSING—metal stair

The Adams Co Dubuque Iowa
American Abrasive Metals Co Irvington N J
American Mason Safety Tread Co Lowell Mass
Ford Metal Moulding Co 329 E 45th New York 17 N Y (80)
Macklanburg-Duncan Co Oklahoma City Okla (297)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Goodloe E Moore Co Danville Ill
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
Samson Products Co 4238 N Leavitt St Chicago 18 Ill
Youngstown Manufacturing Inc 66 S Prospect Youngstown 6 Ohio (102)

NOZZLES—hose

W D Allen Mfg Co 566 W Lake Chgo 6 Ill
Boston Woven Hose & Rubber Co Cambridge Mass
Elkhart Brass Mfg Co Elkhart Ind

OFFICE MACHINES & SYSTEMS

American Perforator Co 627 W Jackson Blvd Chgo Ill
Ajax Time Stamp Co 368 Broadway New York City N Y
Burroughs Adding Machine Co Detroit 32 Mich
Calculagraph Co Harrison N J
Delbridge Calculating Systems Inc St Louis 17 Mo (payroll)
Diebold Inc Canton 2 Ohio
Egry Register Co Dayton Ohio
Felt & Tarrant Mfg Co 1735 N Paulina Chgo Ill
Friden Calculating Machine Co Inc San Leandro Calif
Hamilton Autographic Register Co Hamilton Ohio
Lightning Calculator Co Grand Rapids Mich
Marchant Calculating Machine Co Oakland Calif
Meilicke Systems Inc 3458-60 N Clark Chgo 13 Ill
Monroe Calculating Machine Co Inc Orange N J
National Cash Register Co Dayton Ohio
Northwest Metal Products Co 1337 E Mason Green Bay Wis (409)
Remington Rand Inc 315 Fourth New York 10 N Y
Ivan Sorvall 210 Fifth Av New York 10 N Y (505)
The Standard Register Co Dept 1301 Dayton 1 Ohio
Todd Co Inc Rochester 3 N Y
Uarco Inc 5000 S California Av Chgo 32 Ill
Underwood Corp 1 Park Av New York 16 N Y
Victor Adding Machine Co 3900 N Rockwell Chgo Ill

OIL—linseed

Archer-Daniels Midland Co Minneapolis 2 Minn (184)
Bisbee Linseed Co 2100 Lincoln Liberty Bldg Phil 7 Pa
Chi-Namel Paint & Varnish Co Minneapolis Minn
W P Fuller & Co 301 Mission San Fran 19 Cal
Glidden Co Cleveland 2 Ohio
Geo C Gordon Chemical Co Kansas City 7 Mo
Interstate Oil Co Kansas City Kansas
Spencer Kellogg & Sons Inc Buffalo N Y
Minnesota Linseed Oil Paint Co Minneapolis Minn
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Sherwin Williams Co Cleveland O (183)
Technical Oil Div South Tex Cotton Oil Co Houston Tex

OIL—paraffine

Kalamazoo Paraffine Co Kalamazoo 24 Mich

OUTDOOR FURNITURE

Biles-Coleman Lumber Co Omak Wash (141)
Bunting Glider Co 18th & Allegheny Av Philadelphia Pa
Fence Co of America 608 S Dearborn St Chicago 5 Ill (332)
Frostbrand Furniture Mfg Co Shreveport La
Gold Medal Folding Furniture Co Racine Wis
Thos Graham & Co Inc Madison Ind
Habitant Shops Inc Bay City Mich
Hart Mfg Co Louisville 3 Ky
Heywood-Wakefield Co Gardner Mass
Edward Hines Lumber Co 77 W Washington Chgo Ill (377)
Ideal Mfg Co Warsaw Mo
Kinzua Pine Mills Co Kinzua Ore (31)
The Long-Bell Lumber Co Kansas City 6 Mo
Nappanee Lumber & Mfg Co Nappanee Ind
Nashotah Moulding & Mfg Co Nashotah Wis
Old Hickory Furniture Co Martinsville Ind
Rittenhouse Mfg Co Cheboygan Mich
Geo J Silbernagel 8 S Michigan Av Chicago 3 Ill
Tucker Duck & Rubber Co Fort Smith Ark
Harry M Wolfe 666 Lake Shore Drive Chicago 11 Ill
Woodenware Products Corp St Louis 1 Mo

OVENS—electric drying

Detroit Sheet Mtl Wks Detroit Mich
Grand Rapids Vapor Kiln Inc Grand Rapids 2 Mich
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Harold E Trent Co Philadelphia 27 Pa

OVENS—outdoor

The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Hancock Iron Wks Pontiac 14 Mich
The Outdoor Oven Fireplace Co 1477 Park Hartford 6 Conn (318)

PACKAGE RECEIVERS

Copco Steel & Engineering Co Detroit 27 Mich
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Excel Metal Cabinet Co Jamestown NY
Gabriel Steel Co Detroit 12 Mich
Kewanee Mfg Co Kewanee Ill

PADLOCKS

Bemis & Call Co Springfield Mass
Best Universal Lock Co 10 No Senate Indianapolis 4 Ind
Chicago Lock Co 2024 Racine Av Chgo Ill
Dudley Lock Corp 564 W Monroe Chgo Ill
Eagle Lock Co 110 N Franklin Chgo Ill
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Four-Way Lock Co 4619 Ravenswood Av Chgo Ill
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
Master Lock Company Milwaukee 10 Wis
J B Miller Keyless Lock Co Kent O
Ox-Wall Tool Co 928 Broadway New York 10 N Y
Russell & Erwin Mfg Co New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Segal Lock & Hdwe Co Inc 395 Broadway NY 13 NY
Slaymaker Lock Co Lancaster Pa
Waterbury Lock & Specialty Co Milford Conn
Yale & Towne Mfg Co Stamford Conn (269)

PAINT

Acme White Lead & Color Wks 8250 St Aubin Av Detroit 11 Mich
Akron Paint & Varnish Co Akron 1 O (24)
Alabastine Paint Prod Grand Rapids Mich
American Marietta Co 43 E Ohio Chgo 11 Ill
Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Baltimore Paint & Color Works Baltimore 23 Md
Berry Bros Inc Detroit 7 Mich
Boston Varnish Co Boston Mass (178)
Bro-ca-do Inc 664 N Michigan Av Chicago 11 Ill (one-coat interior, sand-textured) (175)
Samuel Cabot Inc 141 Milk St Boston 9 Mass
Calbar Paint & Varnish Co Philadelphia 25 Pa
Carbola Chemical Co Natural Bridge N Y
Carbozite Corp First National Bank Bldg Pittsburgh Pa
Central Paint & Varnish Wks 69 Prospect Brooklyn N Y
Chi-Namel Paint & Varnish Co Minneapolis Minn
E I Du Pont de Nemours & Co Inc Wilmington Del
Dyke Bros Little Rock Ark (141)
Eagle-Picher Co Cincinnati 1 Ohio
Elliott Paint & Varnish Co 4523 W Fifth Av Chicago Ill
Enterprise Paint Mfg Co 337 S Peoria Chgo 7 Ill
Farwell Ozmun Kirk & Co St Paul 1 Minn
Forman Ford & Co Minneapolis 1 Minn
The Foy Paint Co Inc Cincinnati 12 Ohio
Glidden Co Cleveland O
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
Great Lakes Varnish Wks Inc 2215 N Pulaski Chgo Ill
Keystone Varnish Co 71 Otsego St Brooklyn 31 N Y
I F Laucks Inc 911 Western Av Seattle 4 Wash
Lowe Bros Co Dayton O (173)
John Lucas & Co Philadelphia Pa
John W Masury & Son Inc Baltimore Md
Minnesota Linseed Oil Paint Co Minneapolis Minn
Mobile Paint Mfg Co Mobile Ala
Benj Moore & Co 511 Canal NY NY
Muralo Co Inc 566 Richmond Terrace Staten Island N Y
Murphy Paint Div Interchemical Corp 224 McWhorter Newark 1 N J
National Lead Co 111 Broadway New York 6 N Y
Paraffine Cos Inc San Francisco Cal
Ira Parker & Sons Co Oshkosh Wis (76)
Patterson-Sargent Co Cleveland O
Peaslee-Gaulbert Paint & Varnish Co Inc Louisville Ky
Phelan-Faust Paint Mfg Co St Louis Mo
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Plasti-Kote Co Cleveland 13 O
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Rockford Paint Mfg Co Rockford Ill
St Louis Surfacer & Paint Co St Louis Mo
Sargent-Gerke Co Indianapolis Ind
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Sherwin-Williams Co Cleveland O (183)
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Standard Varnish Works 2589 Richmond Terrace Staten Island 3 N Y

Number in parenthesis indicates page on which advertisement appears

Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Truscon Labs Detroit Mich
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
U S Gutta Percha Paint Co Dept 19 Dudley & Eddy Providence 1 R I
Valentine & Co Inc 11 E 36 NY NY
Vita-Var Corp Newark N J (508)
Wadsworth Howland & Co 141 Federal Boston Mass
The Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass

PAINT—asphalt

Abesto Mfg Corp Michigan City Ind
Akron Paint & Varnish Co Akron 1 Ohio (24)
American Marietta Co 43 E Ohio Chgo 11 Ill
Armstrong Paint & Varnish Wks 1318 S Kilbourn Av Chgo Ill
Atlantic Paint & Varnish Works Wilmington N C
Barrett Div Allied Chem & Dye Corp 40 Rector St NY NY (223)
Black Cat Corp Hattiesburg Miss
Boston Varnish Co E Everett Mass (178)
Calbar Paint & Varnish Co 2612 N Martha Phil 25 Pa
Carbozite Corp First National Bank Bldg Pittsburgh Pa
Philip Carey Mfg Co Cincinnati 15 O (235)
Devoe & Raynolds Co Inc 787 1st Av NY 17 NY
E I DuPont de Nemours & Co Inc Wilmington Del
Flintkote Co 30 Rockefeller Plaza NY NY
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
Forman Ford & Co Minneapolis 1 Minn
Glidden Co Cleveland O
Geo C Gordon Chemical Co Kansas City 7 Mo
A C Horn Co 4326 Tenth Long Island City N Y
Lastik Products Co Inc Pittsburgh 22 Pa
Lowe Bros Co Dayton O (173)
Martin Senour Co 2520 Quarry Chgo Ill
Mathews Paint Co Los Angeles Calif
Minnesota Linseed Oil Paint Co Minneapolis Minn
Mixtite Corp North Haven Conn
The O'Brien Corp South Bend 21 Ind
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Pecora Paint Co Philadelphia 40 Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Rogers Paint Products Inc 8250 St Aubin Av Detroit 11 Mich
The Ruberoid Co 500 Fifth Ave NY 18 NY (196)
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Sherwin-Williams Co Cleveland O (183)
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
The Sullivan Co P O Box 2606 Memphis 2 Tenn
The Texas Company 135 E 42nd NY NY (217)
Valentine & Co Inc 11 E 36 NY 16 NY
Vita-Var Corp Newark N J (508)
Wadsworth Howland & Co 141 Federal Boston Mass
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass

PAINT—barn and roof

Acme White Lead & Color Works Detroit 11 Mich
Akron Paint & Varnish Co Akron 1 O (24)
American Marietta Co 43 E Ohio Chgo 11 Ill
Armstrong Paint & Varnish Wks 1318 S Kilbourn Av Chgo Ill
Berry Bros Detroit Mich
Black Cat Corp Hattiesburg Miss
Boston Varnish Co Boston 49 Mass (178)
Briggs Maroney Co Inc Everett 49 Mass
Calbar Paint & Varnish Co 2612 N Martha Phil 25 Pa
Carbolineum Wood Preserving Co Milwaukee 3 Wis
Carbozite Corp First National Bank Bldg Pittsburgh Pa
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Jos Dixon Crucible Co Jersey City N J
E I du Pont de Nemours & Co Inc Wilmington Del
Elliott Paint & Varnish Co 4523 W Fifth Av Chicago 24 Ill
Enterprise Paint Mfg Co 337 S Peoria Chgo 7 Ill
Forman Ford & Co 111 Second S Minneapolis 1 Minn
The Foy Paint Co Inc Cincinnati 12 Ohio
W P Fuller & Co 301 Mission San Fran 19 Cal
Glidden Co Cleveland O
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
Keystone Varnish Co 71 Otsego St Brooklyn 31 N Y
Lastik Products Co Inc Pittsburgh 22 Pa
Lowe Bros Co Dayton O (173)
John Lucas & Co Phil Pa
Martin Senour Co 2520 Quarry Chgo Ill
Martin Varnish Co 900 W 49th Place Chgo 9 Ill
J W Masury & Son Inc Sharp & Ostend Baltimore Md
Minnesota Linseed Oil Paint Co Minneapolis Minn
Mixtite Corp North Haven Conn
Benj Moore & Co 511 Canal NY NY
Murphy Paint Div Interchemical Corp 224 McWhorter Newark 1 N J
The O'Brien Corp South Bend 21 Ind
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Ira Parker & Sons Co Oshkosh Wis (76)
Patterson-Sargent Co Cleveland O
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Quigley Co Inc 527 Fifth Av New York 17 N Y
Sargent-Gerke Co Indianapolis 6 Ind
Sherwin-Williams Co Cleveland O (183)
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass
The Sullivan Co P O Box 2606 Memphis 2 Tenn
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
U S Gutta Percha Paint Co Dept 19 Dudley & Eddy Providence 1 R I
Valentine & Co Inc 11 E 36 NY NY
Vita-Var Corp Newark N J (508)
Wadsworth Howland & Co 141 Federal Boston Mass
The Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass

PAINT—casein & cold water

Alabastine Paint Prod Grand Rapids Mich
American Marietta Co 43 E Ohio Chgo 11 Ill
Baltimore Paint & Color Works Baltimore 23 Md
Briggs Maroney Co Inc Everett 49 Mass
Samuel Cabot Inc 141 Milk St Boston 9 Mass
Devoe & Raynolds Co Inc 787 First Av NY 17 NY
E I du Pont de Nemours & Co Inc Wilmington Del
Glidden Co Cleveland O
A C Horn Co 43-36 Tenth Long Island City N Y
Lowe Bros Co Dayton O (173)
Martin Senour Co 2520 Quarry Chgo Ill
Minnesota Linseed Oil Paint Co Minneapolis Minn
Muralo Co Inc 572 Richmond Terrace Staten Island 1 NY
National Gypsum Co Buffalo NY (198-199)
The O'Brien Corp South Bend 21 Ind
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Reardon Co St Louis 6 Mo (185)
Ricketson Mineral Color Wks Milwaukee Wis
Rogers Paint Products Inc 8250 St Aub'n Av Detroit 11 Mich
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Sherwin-Williams Co Cleveland O (183)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
U S Gypsum Co 300 W Adams Chgc 6
Vita-Var Corp Newark N J (508)
Wadsworth Howland & Co 141 Federal Boston Mass
Wesco Waterpaints Inc East Boston Mass

PAINT—cement, brick, concrete

Acme White Lead & Color Wks 8250 St Aubin Av Detroit 11 Mich
Adensite Co Inc 37-19 23rd St L I City NY
Akron Paint & Varnish Co Akron 1 O (24)
Alabastine Paint Prod Grand Rapids Mich
American Marietta Co 43 E Ohio Chgo 11 Ill
Anti-Hydro-Waterproofing Co Newark N J
Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Berry Bros Inc Detroit 7 Mich
The Black Diamond Paint & Varnish Works Inc 1209 Bank St Cincinnati 14 Ohio
Boston Varnish Co Boston 49 Mass (178)
Samuel Cabot Inc 141 Milk St Boston 9 Mass
Calbar Paint & Varnish Co 2612 N Martha Phil 25 Pa
Celadri Corp 652 Willis Ave Williston Park N Y (347)
Ceresit Waterproofing Corp 512 S Canal Chicago 7 Ill
Devoe & Raynolds Co Inc 787 1st Av NY 17 NY
E I du Pont de Nemours & Co Inc Wilmington Del
Elliott Paint & Varnish Co 4523 W Fifth Av Chicago 24 Ill
Enterprise Paint Mfg Co 337 S Peoria Chgo 7 Ill
Evercrete Corp 19 W 44th NY 18 NY
Forman Ford & Co Minneapolis 1 Minn
M Ewing Fox Co Inc 240 E 136th NY NY
The Foy Paint Co Inc Cincinnati 12 Ohio
Glidden Co Cleveland O
A C Horn Co 43-36 Tenth Long Island City N Y
Lowe Bros Co Dayton O (173)
John Lucas & Co Phil Pa
Martin Senour Co 2520 Quarry Chgo Ill
Minnesota Linseed Oil Paint Co Minneapolis Minn
Mixtite Corp North Haven Conn
Benj Moore & Co 511 Canal NY NY
Muralo Co Inc 566 Richmond Terrace Staten Island N Y
National Gypsum Co Buffalo N Y (198-199)
The O'Brien Corp South Bend 21 Ind
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Patterson Sargent Co Cleveland O
Penn Crete Products Co Philadelphia 32 Pa
Phelan-Faust Paint Mfg Co St Louis Mo
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Quigley Co Inc 527 Fifth Av New York 17 N Y
Reardon Co St Louis 6 Mo (185)
Reilly Tar & Chemical Corp Indianapolis 4 Ind
Sherwin-Williams Co Cleveland O (183)
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Truscon Labs Detroit Mich
United States Gypsum Co 300 W Adams Chgo Ill
Valentine & Co Inc 11 E 36th St New York 16 N Y
Vita-Var Corp Newark N J (508)
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass

PAINT—dry kiln

Black Cat Corp Hattiesburg Miss
Enterprise Paint Mfg Co 337 S Peoria Chgo 7 Ill
Grand Rapids Vapor Kiln Inc Grand Rapids 2 Mich
Mineral Pigments Corp Muirkirk Md
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (227)

Number in parenthesis indicates page on which advertisement appears

Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Rockford Paint Mfg Co Rockford Ill
Rogers Paint Products Inc Detroit 11 Mich
Sherwin-Williams Co Cleveland O (183)
Standard Dry Kiln Co Box 544 Indianapolis Ind
Vita-Var Corp Newark 2 N J (508)

PAINT—lead

Akron Paint & Varnish Co Akron 1 O (24)
American Marietta Co 43 E Ohio Chgo 11 Ill
Boston Varnish Co Boston 49 Mass (178)
Devoe & Raynolds Co Inc 787 1st Av NY 17 NY
The Eagle Picher Co Cincinnati 1 Ohio
Enterprise Paint Mfg Co 337 S Peoria Chgo 7 Ill
Forman Ford & Co 111 Second S Minneapolis 1 Minn
W P Fuller & Co 301 Mission San Fran 19 Cal
Glidden Co Cleveland O
A C Horn Co 43-42 Tenth Long Island City 1 NY
Inland White Lead Co 741 W Gladys Chgo Ill
Martin-Senour Co 2520 S Quarry St Chicago 8 Ill
Natl Lead Co 111 Broadway NY NY
The O'Brien Corp South Bend 21 Ind
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc Buffalo 7 N Y
Rockford Paint Mfg Co Rockford Ill
Sargent-Gerke Co Indianapolis 6 Ind
Sherwin-Williams Co Cleveland O (183)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Truscon Labs Detroit Mich
Vita-Var Corp Newark 2 N J (508)

PAINT—lumber end check degrade

The Akron Paint & Varnish Co Akron 1 Ohio (24)
Baltimore Paint & Color Works Baltimore 23 Md
Black Cat Corp Hattiesburg Miss
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Enterprise Paint Mfg Co 337 S Peoria Chgo 7 Ill
Forman Ford & Co 111 Second S Minneapolis 1 Minn
Kalamazoo Paraffine Co Kalamazoo 24 Mich
Martin-Senour Co 2520 S Quarry St Chicago 8 Ill
Minnesota Linseed Oil Paint Co Minneapolis Minn
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
The O'Brien Corp South Bend 21 Ind
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
Vita-Var Corp Newark 2 N J (508)
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass
Wood Treating Chemicals Co St Louis 10 Mo

PAINT—marine

Acme White Lead & Color Works Detroit 11 Mich
Alabastine Paint Products Grand Rapids 9 Mich
Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Atlantic Paint & Varnish Works Wilmington N C
Baltimore Paint & Color Works Baltimore 23 Md
Berry Bros Inc Detroit 7 Mich
Boston Varnish Co Boston 49 Mass (178)
Carbozite Corp First National Bank Bldg Pittsburgh Pa
Devoe & Raynolds 787 1st Av NY 17 NY
E I du Pont de Nemours & Co Inc Wilmington Del
Enterprise Paint Mfg Co 337 S Peoria Chgo 7 Ill
Forman Ford & Co Minneapolis 1 Minn
Glidden Co Cleveland O
A C Horn Co 43-36 Tenth Long Island City N Y
John Lucas & Co Inc Philadelphia Pa
Martin Senour Co 2520 Quarry Chgo Ill
Minnesota Linseed Oil Paint Co Minneapolis Minn
Nox-Rust Chemical Corp 2425 S Halsted Chgo 8 Ill
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc Buffalo 7 N Y
Quigley Co Inc 527 Fifth Av New York 17 N Y
Sherwin-Williams Co Cleveland O (183)
Steelcote Mfg Co St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass
Tremco Mfg Co 8701 Kinsman Road Cleveland 4 Ohio
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
Valentine & Co Inc 11 E 36th NY 16 NY
Vita-Var Corp Newark 2 N J (508)
The Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass

PAINT—metallic

Advance Paint Co Indianapolis Ind
Alabastine Paint Prod Grand Rapids Mich
The Alcatraz Co Inc Richmond 20 Va
American Marietta Co 43 E Ohio Chgo 11 Ill
Armstrong Cork Co Lancaster Pa
Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Atlantic Paint & Varnish Works Wilmington N C
Baker Paint & Varnish Co Jersey City 4 N J
Baltimore Paint & Color Works Baltimore 23 Md
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
The Black Diamond Paint & Varnish Works Inc 1209 Bank St Cincinnati 14 Ohio
Blue Ridge Talc Co Inc Henry Va
Briggs Maroney Co Inc Everett 49 Mass
Calbar Paint & Varnish Co 2612 N Martha Phil 25 Pa
Carbozite Corp First National Bank Bldg Pittsburgh Pa
Carter Paint Co Liberty Ind
Cheesman-Elliot Co Inc 647 Kent Av Brooklyn 11 N Y
Chi-Namel Paint & Varnish Co Minneapolis Minn
Colorado Paint Co 3551 Blake Denver 5 Colo
Devoe & Raynolds Co 787 1st Av NY 17 NY
E I du Pont de Nemours & Co Inc Wilmington Del
Eagle-Picher Co Cincinnati 1 Ohio
Eberson-Lindsley Paint Co 1601 N Broadway St Louis Mo
The Edwards Mfg Co Cincinnati 2 Ohio
Ensign Products Co Cleveland 5 Ohio
Enterprise Paint Mfg Co 337 S Peoria Chgo 7 Ill
Federal Varnish Co 337 S Peoria Chgo 7 Ill
Forbes Varnish Co Cleveland 11 Ohio
Forman Ford & Co Minneapolis 1 Minn
The Foy Paint Co Inc Cincinnati 12 Ohio
W P Fuller & Co 301 Mission San Fran 19 Cal
Gillespie Varnish Co Dey & Howell Sts Jersey City N J
Glidden Co Cleveland O
Globe Paint Wks Inc 202-208 Market Williamsport 5 Pa
Lowe Bros Co Dayton O (173)
Lyon Conklin & Co Baltimore 30 Md
Markal Co 607-R N Western Av Chicago 12 Ill
Mar-Kay Mfg Co 2715 S Second St St Louis Mo
Martin-Senour Co 2520 S Quarry St Chicago 8 Ill
Minnesota Linseed Oil Paint Co Minneapolis Minn
Mixtite Corp North Haven Conn
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Phelan-Faust Paint Mfg Co St Louis Mo
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc Buffalo 7 N Y
The Premier Chemical Corp Cleveland 10 Ohio
Quigley Co Inc 527 Fifth Av New York 17 N Y
Sherwin-Williams Co Cleveland O (183)
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcoate Mfg Co 3418 Gratiot St Louis 3 Mo
Truscon Lab Detroit Mich
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
Valentine & Co Inc 11 E 36th NYC NY
Vita-Var Corp Newark N J (508)
Wadsworth Howland & Co 141 Federal Boston Mass

PAINT—tree

Baltimore Paint & Color Works Baltimore 23 Md
Black Cat Corp Hattiesburg Miss
Carbola Chemical Co Inc Natural Bridge N Y
Carbolineum Wood Preserving Co Milwaukee 3 Wis
Carter Paint Co Liberty Ind
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Forman Ford & Co Minneapolis 1 Minn
A C Horn Co 43-42 Tenth Long Island City 1 NY
Martin-Senour Co 2520 S Quarry St Chicago 8 Ill
Mixtite Corp North Haven Conn
Pecora Paint Co Philadelphia Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo

PAINT AGITATORS

Binks Mfg Co 3124 W Carroll Av Chgo Ill
Consolidated Steel Corp Ltd Los Angeles Cal
J H Day Co Cincinnati O
The DeVilbiss Company 300 Phillips Av Toledo 1 Ohio
Edge Moor Iron Wks 30 Rockefeller Plaza NY NY
Electric Sprayit Co Sheboygan Wis
Fanner Mfg Co Cleveland O
Miracle Paint Rejuvenator Co St Paul 1 Minn
Paasche Airbrush Co 1909 W Diversey Chgo Ill
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Red Devil Tools Irvington 11 N J (288)

PAINT REMOVER

Acme White Lead & Color Wks 8250 St Aubin Av Detroit 11 Mich
Alabastine Paint Products Grand Rapids 9 Mich
American Marietta Co 43 E Ohio Chgo 11 Ill
Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Baltimore Paint & Color Works Baltimore 23 Md
Berry Bros Inc Detroit 7 Mich
Boston Varnish Co Boston 49 Mass (178)
Breinig Brothers Inc 1st & Harrison Hoboken N J
Briggs Maroney Co Inc Everett 49 Mass
Chi-Namel Paint & Varnish Co Minneapolis Minn
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
The Dow Chemical Co Midland Mich
E I du Pont de Nemours & Co Inc Wilmington Del
Forman Ford & Co Minneapolis 1 Minn
W P Fuller & Co 301 Mission San Fran 19 Cal
Glidden Co Cleveland O
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
Great Lakes Varnish Wks Inc 2215 N Pulaski Chgo Ill
Haynes Products Co Omaha 3 Neb
Industrial Chemical Development Corp 347 Madison Av New York 17 N Y
Keystone Varnish Co 71 Otsego St Brooklyn 31 N Y
W W Lawrence & Co Pittsburgh 19 Pa
Lowe Bros Co Dayton Ohio (173)
Martin Senour Co 2520 Quarry Chgo Ill
Minnesota Linseed Oil Paint Co Minneapolis Minn
Oakite Products Inc 22 Thames New York 6 N Y
The O'Brien Corp South Bend 21 Ind
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY

Number in parenthesis indicates page on which advertisement appears

Reliable Paste Co 3560 Shields Av Chgo 9 Ill
The Savogran Co Boston 10 Mass (170)
Steelcote Mfg Co St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass
Valentine & Co Inc 11 E 36th NY 16 NY
Vita-Var Corp Newark 2 N J (508)

PAINT SPRAYERS

Binks Mfg Co 3114 Carroll Av Chicago 12 Ill
Boyle-Midway Inc Jersey City 2 N J (182)
Colorcrete Industries Inc Holland Mich
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
DeVilbiss Co Toledo 1 Ohio
Electric Sprayit Co Sheboygan Wis
H D Hudson Mfg Co 589 E Illinois St Chicago Ill (311)
Lowell Mfg Co 589 E Illinois St Chicago Ill (321)
Macleod Co Cincinnati 22 Ohio
Paasche Airbrush Co 1909 W Diversey Chicago Ill
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)

PAINTERS DROP CLOTHS

Bemis Bro Bag Co St Louis 2 Mo
Clifton Mfg Co Waco Texas
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Fulton Bag & Cotton Mills Atlanta 1 Ga
Newark Ladder & Bracket Sales Co Inc Newark 3 N J
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Rockford Paint Mfg Co Rockford Ill
Werner Canvas Products Co 607 Bergen St Brooklyn 17 N Y

PAINTERS' SUPPLIES

Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
General Engineering Corp Charlotte Mich
The Glidden Co 11001 Madison Av Cleveland 2 Ohio
Holley Chemical Co 122 E 25th St New York 10 N Y (deodorant)
Landers Frary & Clark New Britain Conn
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Red Devil Tools Irvington 11 N Y (288)
Rockford Paint Mfg Co Rockford Ill
Savogran Co India Wharf Boston 10 Mass (170)
Stencil Specialty Co 388 Ocean Av Jersey City N J
Truscon Laboratories Detroit Mich
United Wire Goods Mfg Co Inc 1150 Broadway New York N Y
Wendell Mfg Co 4234 N Lincoln Av Chgo 18 Ill

PALLETS—wooden

Carr & Moehl Co Des Moines 9 Iowa
Cole Mfg Co Box 2657 Memphis 8 Tenn
Northwest Door & Plywood Sales Tacoma 1 Wash
Geo J Silbernagel 8 S Michigan Av Chicago 3 Ill
Timber Structures Inc Portland 8 Ore

PAPER—asbestos

Acme Asbestos Covering & Flooring Co 244 N Elizabeth Chgo 7 Ill
Philip Carey Mfg Co Cincinnati 15 O NY (235)
Curtis Asbestos Co 29 Lewis Wharf Boston 10 Mass
Ehret Magnesia Mfg Co Inc Valley Forge Pa
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Keasbey & Mattison Co Ambler Pa
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
Smith & Kanzler Inc Elizabeth N J
Standard Asbestos Mfg Co 820 W Lake Chgo 7 Ill
Thilmany Pulp & Paper Co Kaukauna Wis

PAPER—building, roofing & sheathing

Angier Sales Corp Framingham Mass
Bird & Son Inc East Walpole Mass
Philip Carey Mfg Co Cincinnati 15 O (235)
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Prods Corp 120 S LaSalle Chgo Ill (215)
Fleming & Sons Inc Dallas Tex
Flintkote Co 30 Rockefeller Plaza NY NY
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Koppers Co Tar & Chemical Div Pittsburgh Pa
Lehon Co 4425 S Oakley Av Chgo Ill
The Richkraft Co Builders Bldg Chgo 1 Ill (250-251)
The Ruberoid Co 500 Fifth Av N Y 18 NY (196)
The Sisalkraft Co 205 W Wacker Dr Chgo 6 Ill (237)
Thilmany Pulp & Paper Co Kaukauna Wis
Welt & Sons Paper Co Detroit 26 Mich

PAPER—concrete curing

Angier Sales Corp Framingham Mass
Certain-teed Prods Corp 120 S LaSalle Chgo Ill (215)
Keystone Asphalt Products Co 43 E Ohio St Chicago 11 Ill
The Richkraft Co Builders Bldg Chicago 1 Ill (250-251)
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
The Sisalkraft Co 205 W Wacker Dr Chgo 6 Ill (237)
Tamko Asphalt Products Inc Joplin Mo
Welt & Sons Paper Co Detroit 26 Mich

PAPER—decorative building

Fleming & Sons Inc Dallas Tex

PARTITIONS—glass wall

Libbey-Owens-Ford Co Toledo 0 (155-158)
Pennsylvania Wire Glass Co 1612 Market Philadelphia 3 Pa
Pittsburgh Plate Glass Co Pittsburgh Pa (151)

PASTE—wallpaper

Commercial Paste Co Columbus 8 Ohio
H B Fuller Co St Paul 2 Minn

PATCHER—concrete

American Fluresit Co Cincinnati 29 O
Anti-Hydro Waterproofing Co Newark 8 N J
Ceresit Waterproofing Corp 512 S Canal Chgo 7 Ill
E D Coddington Mfg Co Milwaukee 9 Wis
Consumers Glue Co St Louis 6 Mo
M E Curtis Mfg Co 29 Lewis Wharf Boston 10 Mass
Evercrete Corp 19 W 44 NY 18 NY
Rutland Fire Clay Co Rutland Vermont

PENCILS—carpenters'

Blaisdell Pencil Co Philadelphia Pa
Jos Dixon Crucible Co Jersey City N J
Eagle Pencil Co 703 E 13th NY 9 NY
Economy Novelty & Prtg Co 225 W 39 NY 18 NY
A W Faber Inc Newark N J
The Kemper Thomas Co Cincinnati 12 Ohio
The Thos D Murphy Co Red Oak Iowa
Shedd-Brown Mfg Co Minneapolis 15 Minn.

PENCILS—drawing

Jos Dixon Crucible Co Jersey City 3 N J
Eagle Pencil Co 703 E 13th NY 9 NY
Eugene Dietzgen 2425 N Sheffield Av Chgo Ill
Keuffel & Esser Co Adams & Third Hoboken N J
Koh-I-Noor Pencil Co 373 Fourth Av NY NY

PIPE—asbestos cement

Johns-Manville Corp 22 E 40th NY 16 NY (224)
Keasbey & Mattison Co Ambler Pa

PIPE—clay, sewer

Cannelton Sewer Pipe Co Inc Cannelton Ind
Chicago Fire Brick Co 1461 N Elston Av Chgo Ill
Clay City Pipe Co Uhrichsville Ohio
Columbia Pipe Co Columbia S C
S R Dee Bloomingdale Ind
Dennison Sewer Pipe Corp Cleveland 15 Ohio
Denver Sewer Pipe & Clay Co Denver Colo
W. S. Dickey Clay Mfg Co Kansas City Mo
Evans Pipe Co Uhrichsville O
Fairmont Wall Plaster Co Fairmont W Va
Gladding-McBean & Co San Francisco 3 Calif
Laclede-Christy Clay Prod Co St Louis Mo
Lehigh Sewer Pipe & Tile Co Ft Dodge Ia
Owensboro Sewer Pipe Co Owensboro Ky
Robinson Clay Products Co Akron O
Streator Drain Pipe Co Streator Ill
Universal Sewer Pipe Corp Cleveland O
Washington Brick & Lime Co Spokane 8 Wash.
What Cheer Clay Prod Co What Cheer Ia

PIPE—conductor, eaves trough

American Rolling Mill Co Middletown O
Chase Brass & Copper Co Waterbury 91 Conn
Klauer Mfg Co Dubuque Ia
La Crosse Steel Roofing & Corrugating Co La Crosse Wis
Martin Metal Mfg Co Wichita Kans
Milcor Steel Co 4101 W Burnham Milwaukee 4 Wis (319)
Newport Rolling Mill Co Newport Ky
Northwest Metal Prod Inc Seattle 4 Wash
Reeves Steel & Mfg Co Dover Ohio
Republic Steel Corp Republic Bldg Cleveland 1 Ohio
St Paul Corrugating Co St Paul 1 Minn
Wheeling Corrugating Co Wheeling W Va (357)
Williams-Wallace Co San Francisco Calif
York Corrugating Co York Pa

PIPE—fibre

Crane Company 836 S Michigan Av Chgo Ill
Fibre Conduit Co Orangeburg NY
Johns-Manville Corp 22 E 40th New York 16 N Y (224)

PIPE—iron culvert

American Rolling Mill Co Middletown Ohio
Beall Pipe & Tank Corp Portland Ore
Bethlehem Steel Co Bethlehem Pa
Newport Rolling Mill Co Newport Ky
Republic Steel Corp Republic Bldg Cleveland 1 Ohio
St Paul Corrugating Co St Paul Minn
Wheeling Corrugating Co Wheeling W Va (357)

PIPE—steel

American Rolling Mill Co Middletown Ohio
Beall Pipe & Tank Corp Portland Ore
Bethlehem Steel Co Bethlehem Pa
J G Braun Co 609 S Paulina Chgo 12 Ill (square & rectangular)
Breyer Bros Whiting & Co Waupun Wis
Crane Company 836 S Michigan Av Chgo Ill
Dempster Mill Mfg Co Beatrice Neb
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Jones & Laughlin Steel Corp Pittsburgh Pa
Laclede Steel Co St Louis Mo
Olson Mfg Co Albert Lea Minn
Republic Steel Corp Republic Bldg Cleveland 1 Ohio
Wheeling Steel Corp Wheeling W Va (357)
Youngstown Steel Prods Youngstown O

PIPE—wood

Baltimore Cooperage Tank & Tower Co Baltimore Md
Caspar Lbr Co San Francisco Calif
Federal Pipe & Tank Co Seattle Wash
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 8 Ore
Pacific Wood Tank Corp San Francisco 5 Calif
Redwood Mfrs Co Pittsburg Calif
U S-Challenge Co Batavia Ill
A Wyckoff & Son Co Elmira N Y

Number in parenthesis indicates page on which advertisement appears

PIPE CLEANERS—chemical

L B Allen Co Inc 6727 W Bryn Mawr Av Chgo Ill
Amer Prods Co Cincinnati O
B T Babbitt Inc 386 4th Av New York 16 N Y
Boyer Chem Laby Co Inc 2700 Wabash Av Chgo Ill
M E Curtis Mfg Co Boston Mass
R M Hollingshead Co Camden N J
Oakite Products Inc 22 Thames New York 6 N Y
Pennsylvania Salt Mfg Co Philadelphia 7 Pa
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Saginaw Salt Prods Co Saginaw Mich

PIPE COVERING—asbestos

Philip Carey Mfg Co Cincinnati 15 O (235)
Curtis Asbestos Co 29 Lewis Wharf Boston 10 Mass
Ehret Magnesia Mfg Co Inc Valley Forge Pa
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
The Ruberoid Co 500 Fifth Av N Y 18 NY (196)
Smith & Kanzler Inc Elizabeth 2 N J
Standard Asbestos Mfg Co 820 W Lake Chgo 7 Ill

PIPE JOINT COMPOUNDS

Baltimore Paint & Color Works Baltimore 23 Md
Blue Ridge Talc Co Inc Henry Va
Samuel Cabot Inc Boston 9 Mass
Calbar Paint & Varnish Co 2612 N Martha Phil 25 Pa
M E Curtis Mfg Co 29 Lewis Wharf Boston 10 Mass
Jos Dixon Crucible Co Jersey City N J
Irvington Varnish & Insulator Co Irvington N J
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
Lake Chemical Co 633 N Western Av Chicago 12 Ill
Landen Putty Works Malden 48 Mass (139-164)
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
Reilly Tar & Chemical Corp Indianapolis 4 Ind
The Robinson Clay Product Co Akron 8 Ohio
Sauereisen Cements Co Pittsburgh 15 Pa
Smooth-On Mfg Co 568-574 Communipaw Av Jersey City 4 N J
So-Lo Wks Inc Loveland O
X-Pando Corp 43-15 36th Long Island City N Y

PIPE & TUBING—plastic

Broadway Rubber Mfg Co 529 E Broadway Louisville 2 Ky
Detroit Macoid Corp Detroit Mich
Extruded Plastics Inc Norwalk Conn
The B F Goodrich Co Akron Ohio
Irvington Varnish & Insulator Co Irvington N J
Plastex Trim Corp Columbus 3 Ohio
Raybestos-Manhattan Inc Passaic N J
Superior Plastic Co 426 N Oakley Chicago Ill

PLAN SERVICES—house, farm

Brown-Blodgett Co St Paul Minn
Continental Steel Corp Kokomo Ind (313)
Easi-Bild Pattern Co Pleasantville N Y
L F Garlinghouse Co Topeka Kan
Home Plan Book Co St Paul 4 Minn
Lumbermans Plan Service 120 Machin Peoria Ill (386)
National Plan Service 1315 W Congress Chgo Ill

PLANK—extension

W W Babcock Co Bath N Y
Breyer Bros Whiting & Co Waupun Wis
J R Clark Co Minneapolis 5 Minn
Goshen Mfg Co Goshen Ind
Rich Ladder Mfg Co 1000 Depot St Cincinnati Ohio
John S Tilley Ladders Co Inc Watervliet N Y
Warner Mfg Co Minneapolis 14 Minn
Woodenware Products Corp St Louis 1 Mo

PLANK—fibre insulating

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Fir-Tex Porter Bldg Portland 4 Ore
The Flintkote Co 30 Rockefeller Plaza New York N Y
Hawaiian Cane Products Ltd Culver City Calif
Insulite Division Minnesota & Ontario Paper Co Baker Arcade Bldg Minneapolis 2 Minn (194-195)
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
Masonite Corp 111 W Washington Chgo Ill
Wood Conversion Co St Paul Minn

PLANK—gypsum

Certain-teed Prod Corp 120 S La Salle Chgo Ill (215)
Gulf States Gypsum Co Houston 2 Tex
U S Gypsum Co 300 W Adams Chgo 6 Ill

PLASTER—acoustical

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Prods Corp 120 S LaSalle Chgo Ill (215)
Gulf States Gypsum Co Houston 2 Tex
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
Keasbey & Mattison Co Ambler Pa
Kelley Island Lime & Transport Co 1122 Leader Bldg Cleveland 14 Ohio
Mission Lime Products Corp Los Angeles 12 Calif
National Gypsum Co Buffalo 2 N Y (198-199)
B F Nelson Mfg Co Minneapolis 13 Minn
Sealcon Products Inc 927 Second Av S Minneapolis 2 Minn
U S Gypsum Co 300 W Adams Chgo 6 Ill
Universal Zonolite Insulation Co 135 S LaSalle Chgo Ill (245)
Western Mineral Products Co Milwaukee 4 Wis

PLASTER—casting

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Prods Corp 120 LaSalle Chgo Ill (215)
Gulf States Gypsum Co Houston 2 Tex
National Gypsum Co Buffalo 2 N Y (198-199)
Sealcon Products Inc 927 Second Av S Minneapolis 2 Minn
Tamms Silica Co 228 N LaSalle Chgo 1 Ill
U S Gypsum Co 300 W Adams Chgo 6 Ill

PLASTER—cedar

E D Coddington Mfg Co Milwaukee 9 Wis
Gulf States Gypsum Co Houston 2 Tex

PLASTER—colored finishing

Alabastine Paint Products Grand Rapids 9 Mich
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
E D Coddington Mfg Co Milwaukee 9 Wis
Grand Rapids Plaster Co Grand Rapids 2 Mich
Gulf States Gypsum Co Houston 2 Tex
Ohio Hydrate & Supply Co Woodville O
Sealcon Products Inc 927 Second Av S Minneapolis 2 Minn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
U S Gypsum Co 300 W Adams Chgo 6 Ill

PLASTER—fibered

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Products Corp 120 S LaSalle Chgo Ill (215)
E D Coddington Mfg Co Milwaukee 9 Wis
Colorado Portland Cement Co Denver Natl Bldg Denver 2 Colo
Fairmont Wall Plaster Co Fairmont W Va
Grand Rapids Plaster Co Grand Rapids 2 Mich
Gulf States Gypsum Co Houston 2 Tex
National Gypsum Co Buffalo N Y (198-199)
Ohio Hydrate & Supply Co Woodville O
Sealcon Products Inc 927 Second Av S Minneapolis 2 Minn
U S Gypsum Co 300 W Adams Chgo Ill
Woodville Lime Prods Co Toledo O

PLASTER—gypsum

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Prods Corp 120 S LaSalle Chgo (215)
Colorado Portland Cement Co Denver Natl Bldg Denver 2 Colo
Fairmont Wall Plaster Co Fairmont W Va
Grand Rapids Plaster Co Grand Rapids 2 Mich
Gulf States Gypsum Co Houston 2 Tex
National Gypsum Co Buffalo N Y (198-199)
Reliable Paste Co 3560 Shields Av Chicago Ill
Texas Cement Plaster Co Oklahoma City Okla
Sealcon Products Inc 927 Second Av S Minneapolis 2 Minn
U S Gypsum Co 300 W Adams Chgo Ill

PLASTER—insulating

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Mission Lime Products Corp Los Angeles 12 Calif
Sealcon Products Inc 927 Second Av S Minneapolis 2 Minn
Universal Zonolite Insulation Co 135 S LaSalle Chgo Ill (245)

PLASTER—lime

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Grand Rapids Plaster Co Grand Rapids 2 Mich
Kelley Island Lime & Transport Co 1122 Leader Bldg Cleveland 14 Ohio
Ohio Hydrate & Supply Co Woodville O
Sealcon Products Inc 927 Second Av S Minneapolis 2 Minn
Woodville Lime Prods Toledo O

PLASTER—patching

Alabastine Paint Products Grand Rapids 9 Mich
Certain-teed Prods Corp 120 S LaSalle Chgo Ill (215)
E D Coddington Mfg Co Milwaukee 9 Wis
Commercial Paste Co Columbus 8 O
Consumers Glue Co St Louis 6 Mo
M E Curtis Mfg Co 29 Lewis Wharf Boston 10 Mass
Donald Durham Co Des Moines 4 Iowa (184)
Grand Rapids Plaster Co Grand Rapids 2 Mich
Gulf States Gypsum Co Houston 2 Tex
Muralo Co Inc 566 Richmond Terrace Staten Island N Y
National Gypsum Co Buffalo N Y (198-199)
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Presstite Engineering Co St Louis 10 Mo
Reardon Co St Louis Mo (185)
Reliable Paste Co 3560 Shields Av Chgo 9 Ill
Rutland Fire Clay Co Rutland Vt
Savogran Co Boston 10 Mass (170)
Sealcon Products Inc 927 Second Av S Minneapolis 2 Minn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
U S Gypsum Co 300 W Adams Chgo 6 Ill

PLASTERBOARD

Barrett Div Allied Chem & Dye Corp 40 Rector NY NY (223)
Celotex Corp 120 So LaSalle Chgo Ill (226-227)
Certain-teed Products Corp 120 S LaSalle Chgo Ill (215)
Grand Rapids Plaster Co Grand Rapids 2 Mich
National Gypsum Co Buffalo N Y (198-199)
U S Gypsum Co 300 W Adams Chgo Ill

PLASTER OF PARIS

Celotex Corp 120 So LaSalle Chgo Ill (226-227)
Certain-teed Prods Corp 120 S LaSalle Chgo Ill (215)
Fairmont Wall Plaster Co Fairmont W Va
Grand Rapids Plaster Co Grand Rapids 2 Mich
Gulf States Gypsum Co Houston 2 Tex
National Gypsum Co Buffalo N Y (198-199)
Ricketson Mineral Color Wks Milwaukee Wis
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
United Gilsonite Labs Scranton Pa
U S Gypsum Co 300 W Adams Chgo 6 Ill

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PLASTIC—waterproof

Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Broadway Rubber Mfg Co 529 E Broadway Louisville 2 Ky
Catalin Corp of America 1 Park Av New York 16 N Y
Davis Plywood Corp Cleveland 11 Ohio
E I DuPont de Nemours & Co Inc Wilmington 98 Del
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Ranetite Mfg Co Inc 1917 S Broadway St. Louis Mo (353)
Servicized Products Corp 6051 W 65th St Chicago 38 Ill
Superior Plastic Co 426 N Oakley Chicago Ill
Technical Supply Co Palo Alto Calif

PLASTIC SURFACING

Kimberly-Clark Corp Neenah Wis (29)
United States Plywood Corp 55 W 44th St New York 18 N Y (laminated) (23)

PLASTICIZED WOOD PUTTY

Boyle-Midway Inc 257 Cornelison Av Jersey City 2 NJ (182)
Breinig Bros Inc Hoboken N J
Carbola Chemical Co Inc Natural Bridge N Y
Colorado Paint Co 3551 Blake Denver 5 Colo
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Glidden Co Cleveland 2 Ohio
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
Martin-Senour Co 2520 S Quarry St Chicago 8 Ill
Perkins Glue Co Lansdale Pa
Savogran Co India Wharf Boston 10 Mass (170)
So-Lo Wks Inc Loveland O
Technical Supply Co Palo Alto Calif
Webb Products Co San Bernardino Calif Norcross Ga (172)

PLASTICS—molded products

American Molding Co 355 Fremont San Fran 5 Cal
American Phenolic Corp 1830 S 54th Av Cicero 50 Ill
Amerline 1753 N Honore Chgo 22 Ill
Broadway Rubber Mfg Co 529 E Broadway Louisville 2 Ky
Catalin Corp of America 1 Park Av New York 16 N Y
General Electric Co Schenectady 5 N Y
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Modern Plastic Co Los Angeles 11 Calif
Parisian Novelty Co 3510 S Western Av Chicago 9 Ill
Plastex Trim Corp Columbus 3 Ohio (extruded)
Republic Creosoting Co Indianapolis 4 Ind
Superior Plastic Co 426 N Oakley Chicago Ill

PLATES—mail box

Allied Hardware Corp 328 Grand Av Brooklyn 5 N Y (300)
American Device Mfg Co Red Bud Ill
Champion Hdwe Co Geneva O
P & F Corbin New Britain Conn
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Natl Brass Co Grand Rapids Mich
Norwalk Lock Co 395 Broadway NY 13 NY
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn-Greg Mfg Co Minneapolis 3 Minn
Penn Hdwe Co Reading Pa
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sargent & Co New Haven Conn (295)
Slaymaker Lock Co Lancaster Pa
Turner Brass Wks Sycamore Ill
Yale & Towne Mfg Co Stamford Conn (269)

PLATES—push & kick

Allmetal Weatherstrip Co 229 W Ohio Chgo Ill
Chase Brass & Copper Co Waterbury Conn
The Columbus Brass Mft Co 620 Dublin Av Columbus 16 Ohio
P & F Corbin New Britain Conn
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Inc Philadelphia Pa
Griffin Mfg Co Erie Pa
Kentucky Metal Prods Co Inc Louisville Ky
Lawrence Bros Sterling Ill
Lockwood Hdwe Mfg Co Fitchburg Mass (270)
Macklanburg - Duncan Co Oklahoma City Okla (297)
McKinney Mfg Co Pittsburgh Pa
Micheals Art Bronze Co Covington Ky
Natl Brass Co Grand Rapids Mich
National Mfg Co Sterling Ill
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn Hdwe Co Reading Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sargent & Co New Haven Conn (295)
Shelby Metal Prods Co Shelby O
Slaymaker Lock Co Lancaster Pa
Standard Mirror Co 141 Milton Buffalo 10 NY
Technical Glass Co Inc Los Angeles Calif
Yale & Towne Mfg Co Stamford Conn (269)

PLATFORMS—lift

American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
Hyster Co Portland 8 Ore & Peoria 1 Ill
Leitelt Iron Works Erie Ave W Grand Rapids 2 Mich (408)
Lewis-Shepard Products Inc Watertown Station Boston 72 Mass
Rotary Lift Co 1051 Kentucky St Memphis 2 Tenn
Yale & Towne Mfg Co Philadelphia Pa (269)

PLUMBING FIXTURES

Abingdon Potteries Inc Abingdon Ill
American Radiator & Standard Sanitary Corp Pittsburgh 22 Pa
Bethlehem Industrial Corp 320 E 39th St New York 16 N Y
Briggs Mfg Co Detroit Mich
W A Case & Son Mfg Buffalo N Y
Crane Company 836 S Michigan Av Chgo Ill
Eljer Co Ford City Pa
General Ceramics Co Sanitary Ware Div Metuchen N J
Kohler Co Kohler Wis
Richmond Radiator Co 835 Fifth Av NY 17 NY
H B Salter Mfg Co Marysville Ohio
Universal Sanitary Mfg Co New Castle Pa

PLYWOOD—douglas fir

Aberdeen Plywood Corp Aberdeen Wash
Aetna Plywood & Veneer 1732 Elston Chgo Ill (50)
Am-Mex Sales Co Inc 28 Church Buffalo 2 N Y
Anacortes Veneer Inc Anacortes Wash
Associated Plywood Mills Olympia Wash
Bellingham Plywood Corp Bellingham Wash
Buffelen Lbr & Mfg Co Tacoma Wash
C-W Plywood Co 9 S Clinton Chgo Ill
Davis Plywood Corp Cleveland 11 Ohio
Douglas Fir Plywood Assn Tacoma 2 Wash
Dyke Bros Little Rock Ark (141)
Elliott Bay Mill Co Seattle Wash
Eugene Plywood Co P O Box 672 Eugene Ore
Fiddes Moore & Co 228 N LaSalle St Chicago Ill (72)
Harbor Plywood Corp Hoquiam Wash (26-27)
Heidner & Co Tacoma 1 Wash (76)
Jim's Lbr & Box Co 1246 Firestone Blvd Los Angeles 1 Calif (79)
Kochton Plywood & Veneer 527 W Roosevelt Rd Chicago Ill
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
Midland Bldg Industries Inc Indianapolis 6 Ind
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Olympia Veneer Co Olympia Wash
Oregon Plywood Corp Sweet Home Ore
Oregon-Washington Plywood Co Tacoma 2 Wash
Pacific Mutual Door Co Plywood Division Tacoma Wash
Pacific Plywood Corp Willamina Ore
Peninsula Plywood Corp Port Angeles Wash
Plywood Detroit Co 4445 Bellevue Av Detroit 7 Mich (49)
Puget Sound Plywood Inc Tacoma Wash (58)
Robinson Mfg Everett Wash
Simpson Industries Inc Seattle Wash
Springfield Plywood Co Springfield Ore
United States Plywood Corp 55 W 44th New York 18 N Y (23)
Vancouver Plywood & Veneer Co Vancouver Wash
Walton Plywood Co Everett Wash
Washington Veneer Co Olympia Wash
West Coast Plywood Co Aberdeen Wash (44)
Western Door & Plywood Corp Portland Ore
The Wheeler Osgood Co Tacoma 1 Wash (127)

PLYWOOD—douglas fir exterior

Aberdeen Plywood Corp Aberdeen Wash
Aetna Plywood & Veneer 1732 Elston Av Chgo Ill (50)
Am-Mex Sales Co Inc 28 Church Buffalo 2 N Y
Associated Plywood Mills Olympia Wash
Bellingham Plywood Corp Bellingham Wash
Buffelen Lbr & Mfg Co Tacoma Wash
C-W Plywood Co 9 S Clinton Chgo Ill
Davis Plywood Corp Cleveland 11 Ohio
Eugene Plywood Co P O Box 672 Eugene Ore
Harbor Plywood Corp Hoquiam Wash (26-27)
Heidner & Co Tacoma 1 Wash (76)
Kochton Plywood & Veneer 527 W Roosevelt Rd Chicago Ill
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Northwest Door & Plywood Sales Tacoma 1 Wash
Oregon Plywood Corp Sweet Home Ore
Pacific Mutual Door Co Plywood Div Tacoma 1 Wash
Peninsula Plywood Corp Port Angeles Wash
Puget Sound Plywood Inc Tacoma Wash (58)
Robinson Mfg Co Everett Wash
Simpson Industries Inc Seattle Wash
United States Plywood Corp 55 W 44th New York 18 N Y (23)
Washington Veneer Co Olympia Wash
West Coast Plywood Co Aberdeen Wash (44)
The Wheeler Osgood Co Tacoma 1 Wash (127)

PLYWOOD—fabric covered

C-W Plywood Co 9 S Clinton Chgo Ill
Davis Plywood Corp Cleveland 11 Ohio
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
Northwest Door & Plywood Sales Tacoma 1 Wash

PLYWOOD—hardwood

Aetna Plywood & Veneer 1732 Elston Av Chgo Ill (50)
American Plywood Corp New London Wis
Anderson-Tully Co Memphis Tenn (16)
C-W Plywood Co 9 S Clinton Chgo Ill
Darlington Veneer Co Inc Darlington S C (68)
Davis Plywood Corp Cleveland 11 Ohio
Daystrom Laminates Inc Daystrom N C
Fiddes Moore & Co 228 N La Salle St Chicago Ill (72)
Frost Veneer & Plywood Co Inc Sheboygan Wis
General Plywood Corp Louisville 12 Ky
Haskelite Mfg Co Grand Rapids Mich
Hoosier Panel Co New Albany Ind
Indiana Veneer & Panel Co New Albany Ind
Jamestown Veneer & Plywood Corp Jamestown N Y
Kochton Plywood & Veneer 527 W Roosevelt Rd Chicago Ill
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
The Mengel Co Inc Louisville Ky (23)
Midland Bldg Industries Inc 907 E Michigan St Indianapolis 6 Ind
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Northern Hdw Veneers Inc Butternut Wis
Northwest Door & Plywood Sales Tacoma 1 Wash
Paine Lbr Co Ltd Oshkosh Wis
Pearl City Plywood Co Inc Jamestown NY
Plywood Detroit Co 4445 Bellevue Av Detroit 7 Mich (49)
Roddis Lumber & Veneer Co Marshfield Wis
Underwood Veneer Co Wausau Wis
United States Plywood Corp 55 W 44th New York 18 N Y (23)
Weber Veneer & Plywood Co Shawano Wis

Number in parenthesis indicates page on which advertisement appears

The Wheeler Osgood Co Tacoma 1 Wash (127)
Wisconsin Timber & Land Co Sheboygan Wis

PLYWOOD—inlaid

Aetna Plywood & Veneer 1732 Elston Av Chgo Ill (50)
Davis Plywood Corp Cleveland 11 Ohio
Natl Plywoods Inc 2710 S Throop Chgo Ill
United States Plywood Corp 55 W 44th New York 18 N Y (23)
Vancouver Plywood & Veneer Co Vancouver Wash

PLYWOOD—marine

Algoma Plywood & Veneer Co Algoma Wis
American Plywood Corp New London Wis
C-W Plywood Co 9 S Clinton Chgo Ill
Davis Plywood Corp Cleveland 11 Ohio
Daystrom Laminates Inc Daystrom N C
Eugene Plywood Co P O Box 672 Eugene Ore
Haskelite Mfg Co Grand Rapids 2 Mich
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
The Mengel Co Inc Louisville Ky (23)
North Plywood Inc 1425 Fourth Av Seattle 1 Wash
Northwest Door & Plywood Sales Tacoma 1 Wash
United States Plywood Corp 55 W 44th New York 18 N Y (23)
The Wheeler Osgood Co 1216 St Paul Tacoma 1 Wash (127)

PLYWOOD—pine

Aetna Plywood & Veener 1732 Elston Av Chgo Ill (50)
C-W Plywood Co 9 S Clinton Chgo Ill
Davis Plywood Corp Cleveland 11 Ohio
Fiddes Moore & Co 228 N La Salle St Chicago Ill (72)
Harbor Plywood Corp Hoquiam Wash (26-27)
Kochton Plywood & Veneer 527 W Roosevelt Rd Chicago Ill
Long Bell Lumber Co Kansas City Mo
Natl Plywoods Inc 2710 S Throop Chgo Ill
Pacific Mutual Door Co Plywood Division Tacoma 1 Wash
Geo J Silbernagel 8 S Michigan Av Chicago 3 Ill
United States Plywood Corp 55 W 44th New York 18 N Y (23)

PLYWOOD—plastic faced

American Plywood Corp New London Wis
Buffelen Lbr & Mfg Co Tacoma Wash
C-W Plywood Co 9 S Clinton Chgo 6 Ill
Davis Plywood Corp Cleveland 11 Ohio
Daystrom Corp Daystrom N C
Harbor Plywood Corp Hoquiam Wash (26-27)
Haskelite Mfg Co Grand Rapids 2 Mich
The Mengel Co Inc Louisville Ky (23)
Northwest Door & Plywood Sales Tacoma 1 Wash
Pearl City Plywood Co Inc Jamestown NY
Simpson Industries Inc Seattle Wash
U S Plywood Corp 55 W 44th NY NY (23)
Washington Veneer Co Olympia Wash
The Wheeler Osgood Co Tacoma 1 Wash (127)

PLYWOOD SEALER

Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Breinig Bros Inc Hoboken N J
Davis Plywood Corp Cleveland 11 Ohio
I F Laucks Inc Seattle 4 Wash
Northwest Door & Plywood Sales Tacoma 1 Wash
Protection Products Mfg Co Kalamazoo Mich (68)
United States Plywood Corp 55 W 44th St New York 18 N Y (179)
Wood Treating Chemicals Co St Louis Mo

POINTS—glazier

Atlas Tack Corp Fairhaven Mass
Austin & Eddy Inc P O Box 1504 Boston 4 Mass
Fletcher Terry Co Forestville Conn (305)
Holland Mfg Co Baltimore Md
W H Maze Co Peru Ill
National Sheet Metal Co Peru Ill
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (151)
Red Devil Tools Irvington 11 NJ (288)
Shelton Tack Co 103 Canal Shelton Conn

POLISH—floor

Boston Varnish Co Boston Mass (178)
Boyle-Midway Inc Jersey City 2 N J (182)
E L Bruce Co Memphis Tenn (207)
Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
Chi-Namel Paint & Varnish Co Minneapolis Minn
Ensign Products Co Cleveland 5 Ohio
Franklin Research Co Philadelphia 31 Pa
Glidden Co Cleveland O
R M Hollingshead Corp Camden N J
Howard Dustless Duster Co Boston 10 Mass
Industrial Chemical Laboratories Ltd Omaha 2 Neb
Lowe Bros Co Dayton Ohio (173)
Martin-Senour Co 2520 S Quarry St Chicago 8 Ill
Minnesota Linseed Oil Paint Co Minneapolis Minn
O-Cedar Corp 2246 W 49 Chgo Ill
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Puritan Chemical Co Atlanta 3 Ga
Sherwin-Williams Co Cleveland O (183)
Simoniz Company 2100 S Indiana Av Chgo Ill
Socony-Vacuum Oil Co 26 Broadway NYC NY
Standard Oil Co of Indiana 910 S Michigan Av Chgo Ill

POLISH—furniture

American Crayon Co Sandusky Ohio
Boston Varnish Co Boston Mass (178)
Boyer Chemical Laboratory Co 2106 Wabash Av Chgo Ill
Boyle-Midway Inc Jersey City 2 N J (182)
Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
E I du Pont de Nemours & Co Inc Wilmington Del
Ensign Products Co Cleveland 5 Ohio
The Foy Paint Co Inc Cincinnati 12 Ohio
Glidden Co Cleveland O
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
R M Hollingshead Co Camden N J
Howard Dustless Duster Co Boston 10 Mass
Industrial Chemical Laboratories Ltd Omaha 2 Neb
Lowe Bros Co Dayton Ohio (173)
John Lucas & Co Philadelphia Pa
Marsh Wall Prod Inc Dover O (192)
Martin Senour Co 2520 Quarry Chgo Ill
Minnesota Linseed Oil Paint Co Minneapolis Minn
O-Cedar Corp 2246 W 49th Chgo Ill
Patterson-Sargent Co Cleveland O
Penetone Co Tenafly N J
Puritan Chemical Co Atlanta 3 Ga
Rubon Woodfinishing & Prod Co Kansas City Mo
Sherwin-Williams Co Cleveland O (183)
Simoniz Company 2100 S Indiana Av Chgo Ill
Socony-Vacuum Oil Co Inc 26 Broadway NY NY
Standard Oil Co of Indiana 910 S Michigan Av Chgo Ill

POST HOLE DIGGERS

The Buda Co Harvey Ill
American Fork & Hoe Co Cleveland 15 Ohio
Ames Baldwin Wyoming Co Parkersburg W Va
Hubbard & Co Pittsburgh Pa
Iwan Bros Inc South Bend Ind
Woodings-Verona Tool Works Verona Pa
Leetonia Tool Co Leetonia Ohio
The Oliver Corp Industrial Div 19300 Euclid Av Cleveland 17 Ohio

POSTS—adjustable floor leveling and supporting

Donley Bros Co Cleveland 5 Ohio (83-98)
Holm's Mfg Co of Ohio Akron 8 Ohio
James Mfg Co Fort Atkinson Wis
Perma-Jack Corp Cleveland 11 Ohio
St Paul Foundry & Mfg Co St Paul 3 Minn
N B Spurgeon Co 20 N Wacker Dr Chicago 6
Tel-O-Post 140 Ash St Akron 8 Ohio (303)
United Metal Products Inc Akron 11 Ohio

POSTS—steel fence, farm

American Steel & Wire Co Cleveland 13 O (309)
Cheney Industries Trenton 5 N J
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Colorado Fuel & Iron Corp Denver 1 Colo
Continental Steel Corp Kokomo Ind (313)
Inland Steel Co 38 S Dearborn Chgo 3 Ill
Keystone Steel & Wire Co Peoria 7 Ill
Laclede Steel Co Arcade Bldg St Louis 1 Mo
Mid-States Steel & Wire Co Crawfordsville Ind
Northwestern Steel & Wire Co Sterling Ill
Republic Steel Corp Republic Bldg Cleveland 1 Ohio
Tennessee Coal Iron & R R Co Birmingham 2 Ala (309)

POSTS—wood

(See lumber classification beginning page 479)

POULTRY EQUIPMENT

Brower Mfg Co Quincy Ill
Clay Equip Corp Cedar Falls Ia
Farwell Ozmun Kirk & Co St Paul 1 Minn
Franklin Equip Co Monticello Ia
H D Hudson Mfg Co 589 E Illinois Chgo Ill (311)
James Mfg Co Fort Atkinson Wis
Lyon Rural Electric Co San Diego 12 Cal
Oakes Mfg Co Inc Tipton Ind
Plume & Atwood Mfg Co Waterbury Conn

POULTRY HOUSES

Crawford Co Baton Rouge 1 La (374)
Ivon R Ford Lumber Co McDonough N Y (374)
George J Silbernagel 8 S Michigan Av Chgo 3 Ill
Super-Structures Inc Albert Lea Minn
Timber Structures Inc Portland 8 Ore
U S-Challenge Co Batavia Ill
Unit Structures Inc Peshtigo Wis

POWER UNITS

Allis-Chalmers Mfg Co Milwaukee Wis (398)
Chase Turbine Mfg Co Orange Mass
General Electric Co Schenectady 5 N Y
Hyster Co Portland 8 Ore & Peoria 1 Ill
International Harvester Co 180 N Michigan Av Chgo 1 Ill
Kato Engineering Co Mankato Minn
The Ready-Power Co 3820 Grand River Av Detroit Mich
Westinghouse Electric Corp 306 Fourth Av Pittsburgh 30 Pa (331)

PREFABRICATED CHIMNEYS

Condensation Eng Corp 122 S Michigan Av Chgo 3 Ill
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)

PREFABRICATED FARM BUILDINGS

Crawford Co Baton Rouge 1 La (374)
The Green Lumber Co Laurel Miss
Factory Built Homes Inc McDonough N Y (374)
G B H-Way Homes Inc Walnut Ill (brooder & laying houses, hog houses) (376)
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Houston Ready-Cut House Co Houston 1 Tex
Indiana Demountable Housing Inc 907 E Michigan Indianapolis 6 Ind
Geo L Mesker Steel Corp Evansville Ind
Precision-Built Homes Corp Trenton N J
Southern Mill & Mfg Co Tulsa Okla
Starline Inc Harvard Ill
The Strathmoor Co 1400 Grand River Av Detroit 27 Mich
Timber Structures Inc Portland 8 Ore
Truscon Steel Co Youngstown 1 Ohio (steel)
U S-Challenge Co Batavia Ill
Unit Structures Inc Peshtigo Wis

Number in parenthesis indicates page on which advertisement appears

PREFABRICATED GARAGES

Crawford Co Baton Rouge 1 La (374)
Ivon R Ford Lbr Co McDonough N Y (374)
The Green Lumber Co Laurel Miss
Pre-Fab Industries 1601 Main St South Bend 23 Ind (376)
Strand Building Products Co Detroit 26 Mich (341)
The Strathmoor Co 14000 Grand River Av Detroit 27 Mich
Timber Structures Inc Portland 8 Ore
U S-Challenge Co Batavia Ill
United States Prefab Co 143 E 45th St New York 17 N Y

PREFABRICATED HOUSES

Adirondack Log Cabin Co 126 E 45th St New York 17 N Y
Allied Housing Associates Inc Langhorne Pa
American Houses Inc 570 Lexington Av NY NY
Anchorage Homes Inc Westfield Mass
Bush Prefab Structures Inc 370 Lexington NY NY
Century Pre-fab Corp Haddon Heights N J (70)
Crawford Co Baton Rouge 1 La (374)
Factory Built Homes Inc McDonough N Y (374)
Fuller Houses Inc Wichita Kan
GBH-Way Homes Inc Walnut Ill (376)
General Houses Inc 400 W Madison Chgo Ill
Green Lumber Co Laurel Miss
Gunnison Homes Inc New Albany Ind
Ira H Hardin Co Atlanta Ga
Home Bldg Corp Kan City Mo
The Home-Qln Corp 9 S Clinton Chgo 6 Ill (372)
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Houston Ready-Cut House Co Houston 1 Tex
Indiana Demountable Housing Inc 907 E Michigan St Indianapolis 6 Ind
Johnson Housing Corp Sharon Pa
Metz Homes Inc 55 Old Country Road Hicksville L I N Y
National Homes Corp of Indiana 52 By Pass Lafayette Ind
Plywood Structures Inc Los Angeles Cal
Precision-Built Homes Corp Trenton N J
Pre-Fab Industries 1601 Main St South Bend 23 Ind (376)
Seaboard Ready-Built Homes Inc 330 Walnut St Philadelphia 6 Pa (70)
Shelter Industries Inc 630 Fifth Av New York 20 N Y
Southern Mill & Mfg Co Tulsa Okla
Southern States Iron Roofing Co Savannah Ga
Stewart & Bennett Co Natl City Cal
The Strathmoor Co 14000 Grand River Av Detroit 27 Mich
Super-Structures Inc Albert Lea Minn
Tacoma Lumber Fabricating Co Tacoma 1 Wash
Texas Housing Co Inc Dallas 9 Tex
Timber Structures Inc Portland 8 Ore
U S-Challenge Co Batavia Ill
United States Prefab Corp 143 E 45th St New York 17 N Y
Unit Structures Inc Peshtigo Wis
N K Winston Associates 22 W 48th St New York N Y

PRESERVATIVE—
awnings, tarpaulins, etc.

Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
Cuprinol Inc 7 Water Boston 9 Mass
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
The Dow Chemical Co Midland Mich
Ensign Products Co Cleveland 5 Ohio
W P Fuller & Co 301 Mission San Fran 19 Cal
Grasselli Chemical Dept E I du Pont de Nemours & Co Inc Wilmington 98 Del
Hettrick Mfg Co Toledo 1 Ohio
H B Fred Kuhls 6413 Third Av Brooklyn N Y
Pennsylvania Salt Mfg Co Philadelphia 7 Pa
Perma Products Co Cleveland 4 Ohio
Protection Products Mfg Co Kalamazoo Mich (68)
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
Robeson-Preserve Co Port Huron Mich
Steelcote Mfg Co St Louis 3 Mo

PRESERVATIVE—rope

Samuel Cabot Inc Boston 9 Mass
Cuprinol Inc 7 Water Boston 9 Mass
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Ensign Products Co Cleveland 5 Ohio
Monsanto Chemical Co 1700 S Second St Louis 4 Mo
Perma Products Co Cleveland 4 Ohio
Protection Products Mfg Co Kalamazoo Mich (68)
Quigley Co Inc 527 Fifth Av New York 17 N Y
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
Reilly Tar & Chemical Corp Indianapolis 4 Ind
Rockford Paint Mfg Co Rockford Ill
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Steelcote Mfg Co St Louis 3 Mo
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass

PRESERVATIVE—wood

Abesto Mfg Corp Michigan City Ind
American Lumber & Treating Co 332 S Michigan Av Chgo Ill (65)
Barrett Div Allied Chem & Dye Corp 40 Rector NY NY (223)
Samuel Cabot Inc 141 Milk St Boston 9 Mass
Carbolineum Wood Preserving Co 528 W Highland Milwaukee 3 Wis
Cer-A-Seal Chemical Corp 221 N La Salle St Chicago 1 Ill (72)
Chapman Chemical Co 333 N Michigan Av Dept A Chicago 1 Ill (66)
Cre-O-Tox Chem Co Memphis Tenn (79)
Cuprinol Inc 7 Wator Boston 9 Mass
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
The Dow Chemical Co Midland Mich
E I DuPont de Nemours & Co Inc Wilmington 98 Del
Elroy Naval Stores Co Inc Vidalia Ga
Ensign Products Co Cleveland 5 Ohio
Forman Ford & Co Minneapolis 1 Minn
Glidden Co Cleveland 2 Ohio
Geo C Gordon Chemical Co Kansas City 7 Mo
Inter-State Oil Co Kansas City 3 Kan
Kalamazoo Paraffine Co Kalamazoo 24 Mich
Koppers Company Inc Wood Preserving Div Pittsburgh 19 Pa
I F Laucks Inc 911 Western Av Seattle 4 Wash
Lowe Bros Co Dayton O (173)
Monsanto Chemical Co St Louis Mo
Paisley Products Inc 1770 Canalport Av Chicago 16 Ill
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Ira Parker & Sons Co Oshkosh Wis (76)
Perma Products Co Cleveland 4 Ohio
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Protection Products Mfg Co Kalamazoo Mich (68)
Protexol Corp 40 Market St Kenilworth N J (18)
Quigley Co Inc 527 Fifth Av New York 17 N Y
Reilly Tar & Chemical Corp Indianapolis 4 Ind
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co St Louis 3 Mo
Sullivan Co Memphis 2 Tenn
Vaccinol Sales Co 2300 W 7th Little Rock Ark
Vita-Var Corp Newark 2 N J (508)
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass
C A Wood Preserver Co St Louis Mo
Wood Treating Chemicals Co St Louis Mo

PREVENTIVES—sap stain

Abesto Mfg Corp Michigan City Ind
Chapman Chemical Co 333 N Michigan Av Dept A Chicago 1 Ill (66)
Dow Chemical Co Midland Mich
E I DuPont de Nemours & Co Inc Wilmington 98 Del
Forman Ford & Co Minneapolis 1 Minn
Geo C Gordon Chemical Co Kansas City 7 Mo
Monsanto Chemical Co St Louis Mo
Solvay Sales Corp 40 Rector New York 6 N Y
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass
Wood Treating Chemicals Co St Louis Mo

PREVENTIVES—wood check

Abesto Mfg Corp Michigan City Ind
E L Bruce Co Memphis Tenn (207)
Chapman Chemical Co 333 N Michigan Av Dept A Chicago 1 Ill (66)
Cre-O-Tox Chem Co Memphis Tenn (79)
E I DuPont de Nemours & Co Inc Wilmington Del
Forman Ford & Co Minneapolis 1 Minn
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Paisley Products Inc 1770 Canalport Av Chicago 16 Ill
Pittsburgh Plate Glass Co Pittsburgh 19 Pa (169)
Protection Products Mfg Co Kalamazoo Mich (68)
Republic Creosoting Co Indianapolis 4 Ind
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass
Wood Treating Chemicals Co St Louis Mo

PRESSES—veneer, hydraulic

American Mfg Co Inc Tacoma 2 Wash (404)
Black Bros Co Inc Mendota Ill
Dunning & Boschert Press Co Inc Syracuse N Y
A B Farquhar Co York Pa
Chas E Francis Co Huntington Ind
Handy Mfg Co 2432 W Lawrence Chgo Ill
Hydraulic Press Mfg Co Mount Gilead O
R D Wood Co Philadelphia 5 Pa

PRICE CARDS

W C Heller & Co 539 N Clark St Montpelier Ohio
Johnswood Co 5621 S Halsted Chgo 21 Ill
Meilicke Systems Inc 3458-60 N Clark Chgo 13 Ill
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
F M Zimmerman Aurora Ill

PRICE CARD HOLDERS

H A Dunning Westerly R I
L F Grammes & Sons Inc 396 Union Allentown Pa
W C Heller & Co 539 N Clark St Montpelier Ohio
Hopp Press Inc 460 W 34 NY NY
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Plastex Trim Corp Columbus 3 Ohio

PRICE CARD MOULDING

Ames Metal Moulding Co Inc 228 E 144th St New York 51 N Y
Johnswood Co 5621 S Halsted Chgo 21 Ill
Knape & Vogt Mfg Co Grand Rapids Mich
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Mutual Fir Column Co Tacoma Wash
Plastex Trim Corp Columbus 3 Ohio (plastic)
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Samson Products Co 4238 N Leavitt St Chicago 18 Ill

PULLS—cabinet & drawer

American Cabinet Hdwe Corp Rockford Ill (285)
Barrows Lock Works North Chicago Ill (301)
Champion Hdwe Co Geneva O
Chase Brass & Copper Co Waterbury 91 Conn
P & Corbin New Britain Conn
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Inc Philadelphia Pa
L F Grammes & Sons Inc Allentown Pa
Knape & Vogt Mfg Co Grand Rapids Mich
Lawrence Bros Sterling Ill
McKinney Mfg Co Pittsburgh Pa
Modern Plastic Co Los Angeles 11 Calif
Pacific Plastic & Mfg Co Inc Los Angeles 16 Calif
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn Hdwe Co Reading Pa
Phoenix Lock Co Newark 7 N J
Plastex Trim Corp Columbus 3 Ohio (plastic)
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sargent & Co New Haven Conn (295)
Sharon Hardware Mfg Co Sharon Pa
Shelby Metal Products Co Shelby O
Shelby Spring Hinge Co Shelby O
Slaymaker Lock Co Lancaster Pa
The Stanley Wks New Britain Conn (272)
Technical Glass Co Inc Los Angeles 11 Calif
Yale & Towne Mfg Co Stamford Conn (269)

Number in parenthesis indicates page on which advertisement appears

PULLS—door

Allith-Prouty Inc Danville Ill
American Cabinet Hdwe Corp Rockford Ill (285)
Barrows Lock Works North Chicago Ill (301)
Champion Hdwe Co Geneva O
Chase Brass & Copper Co Waterbury 91 Conn
P & F Corbin New Britain Conn
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
H S Getty & Co Philadelphia Pa
Lawrence Bros Sterling Ill
McKinney Mfg Co Pittsburgh Pa
National Brass Co Grand Rapids Mich
Peabody-Acker Inc 5816 Hooper Av Los Angeles Calif (291)
Penn Hdwe Co Reading Pa
Phoenix Lock Co Newark 7 N J
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Russell & Erwin Div The American Hardware Corp New Britain Conn
Safe Padlock & Hdwe Co Lancaster Pa
Sager Lock Works North Chicago Ill
Sargent & Co New Haven Conn (295)
Shelby Spring Hinge Co Shelby O
Slaymaker Lock Co Lancaster Pa
The Stanley Wks New Britain Conn (272)
Technical Glass Co Inc Los Angeles 11 Calif
Yale & Towne Mfg Co Stamford Conn (269)

PUMPS—hand

Aermotor Co 2500 W Roosevelt Rd Chgo Ill
Armstrong Products Corp Huntington 12 W Va
Baker Mfg Co Evansville Wis
Butler Co Butler Ind
Deming Co Salem O
Dempster Mill Mfg Co Beatrice Neb
Flint & Walling Mfg Co Inc Kendallville Ind
A Y McDonald Mfg Co P O Box 508 Dubuque Iowa
F E Myers & Bro Co Ashland O
Red Cross Mfg Co Bluffton Ind
Red Jacket Mfg Co Davenport Ia
U S-Challenge Co Batavia Ill

PUMPS—sump

American Well Wks Aurora Ill
Aurora Pump Co Aurora Ill
Chain Belt Co Milwaukee 4 Wis
Chicago Pump Co 2336 W Wolfram Chgo Ill
Construction Machinery Co Waterloo Iowa
The Dayton Pump & Manufacturing Co Dayton Ohio
Deming Co Salem O
Dempster Mill Mfg Co Beatrice Neb
Economy Pumps Inc Hamilton O
The Everite Pump & Mfg Co Inc Lancaster Pa
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Flint & Walling Mfg Co Inc Kendallville Ind
Goulds Pumps Inc Seneca Falls N Y
Imperial Brass Mfg Co 1200 W Harrison Chgo Ill
Independent Pneumatic Tool Co 600 W Jackson Blvd Chicago 6 Ill
Jas P Marsh Corp 2073 N Southport Av Chicago 14 Ill
F E Myers & Bro Ashland O
M L Oberdorfer Brass Co Syracuse N Y
Penberthy Injector Co Detroit Mich
U S-Challenge Co Batavia Ill
Worthington Pump & Mchry Corp Harrison N J

PUMP SUCTION

Allis-Chalmers Mfg Co Milwaukee Wis (398)
Chicago Pump Co 2336 W Wolfram Chgo Ill
Electric Sprayit Co Sheboygan Wis
Gardner Denver Co Quincy Ill
Ingersoll-Rand Co 11 Broadway New York 4 N Y
Jaeger Machine Co Columbus Ohio
Marlow Pumps 519 Greenwood Av Ridgewood N J (centrifugal) (304)
Worthington Pump & Mchry Corp Harrison N J

PUMPS—water supply system

Allis-Chalmers Mfg Co Milwaukee 1 Wis (398)
Aurora Pump Co Aurora Ill
Baker Mfg Co Evansville Wis
Chicago Pump Co 2336 W Wolfram Chgo Ill
Construction Machinery Co Waterloo Ia
Crane Co 836 S Michigan Av Chgo Ill
The Dayton Pump & Manufacturing Co Dayton Ohio
Decatur Pump Co Decatur Ill
Delco Appliance Div Gen'l Motor Sales Rochester N Y
Deming Co Salem O
Dempster Mill Mfg Co Beatrice Neb
Erie Pump & Engine Works Medina N Y
The Everite Pump & Mfg Co Inc Lancaster Pa
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Flint & Walling Mfg Co Kendallville Ind
Gardner Denver Co Quincy Ill
Goulds Pumps Inc Seneca Falls N Y
Heil Co Milwaukee 1 Wis
A Y McDonald Mfg Co P O Box 508 Dubuque Iowa
F E Myers & Bro Co Ashland O
M L Oberdorfer Brass Co Syracuse N Y
Pioneer Gen-E-Motor Corporation 5841 W Dickens Chgo 39 Ill
Red Jacket Mfg Co Davenport Ia
U S-Challenge Co Batavia Ill
Worthington Pump & Mchry Corp Harrison N J

PUMPS—windmill

Aermotor Co 2500 Roosevelt Rd Chgo Ill
Baker Mfg Co Evansville Wis
Deming Co Salem O
Dempster Mill Mfg Co Beatrice Neb
Fairbanks Morse & Co 600 S Michigan Av Chgo 5 Ill
Flint & Walling Mfg Co Inc Kendallville Ind
A Y McDonald Mfg Co P O Box 508 Dubuque Iowa
F E Myers & Bro Co Ashland O
Red Jacket Mfg Co Davenport Ia
U S-Challenge Co Batavia Ill

PUNCHES—center prick

American Swiss File & Tool Elizabeth N J
Baltimore Tool Works Baltimore 30 Md
Bridgeport Hdwe Mfg Corp Bridgeport Conn
Brown & Sharpe Mfg Co 235 Promenade St Providence 1 R I
Cincinnati Tool Co Cincinnati O
Damascus Steel Prod Corp Rockford Ill
Duro Metal Products Co 2649 N Kildare Av Chgo Ill
Fairmount Tool & Forging Co Cleveland 6 Ohio
Hood Bros Philadelphia 24 Pa
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
William Johnson Inc Newark N J
Kraeuter & Co Inc Newark N J
Mephisto Tool Co Inc Hudson NY
P & C Hand Forged Tool Co Portland 2 Ore
Peck Stow & Wilcox Co Southington Conn
Plomb Tool Co Los Angeles Cal
Rainey-Tools Grove City Pa
The Stanley Wks New Britain Conn (272)
L S Starrett Athol Mass
Trimble & Fink Mfg Co Inc Baltimore 1 Md
Tuck Mfg Co Brockton 39 Mass
Vaughan & Bushnell Mfg Co 135 S La-Salle Chgo Ill
Vlchek Tool Co Cleveland O

PURCHASING SERVICE

Biddle Purchasing Co 280 Broadway NY NY (54)

PUSHERS—snow

American Fork & Hoe Co Cleveland O
Ames Baldwin Wyoming Co Parkersburg W Va
Farwell Ozmun Kirk & Co St Paul 1 Minn
Iwan Bros Inc South Bend Ind
Owosso Mfg Co Owosso Mich
Rugg Mfg Co Greenfield Mass
Wirt & Knox Mfg Co Philadelphia 32 Pa
Yeoman-Hoag Co Monticello Ia

PUTTY

Armstrong Co 4065 S La Salle Chgo 9 Ill (161)
Baltimore Paint & Color Works Baltimore 23 Md
Biddle Co St Louis 2 Mo (164)
Blue Ridge Talc Co Inc Henry Va
Boyle-Midway Inc Jersey City 2 N J (182)
Briggs Maroney Co Inc Everett Mass
Carbola Chemical Co Inc Natural Bridge N Y
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Dicks-Pontius Co Dayton O
Donald Durham Co Des Moines 4 Iowa (184)
Farwell Ozmun Kirk & Co St Paul 1 Minn
Felton Sibley & Co Inc 136 N 4th Philadelphia 6 Pa
Forman Ford & Co Minneapolis 1 Minn
Fort Pitt Chem Co Pittsburgh 22 Pa
W P Fuller & Co 301 Mission San Fran 19 Cal
The Glidden Co 11001 Madison Av Cleveland 2 Ohio
Gumputtie Laboratories 2221 S Archer Av Chicago 16 Ill
Landen Putty Works Malden 48 Mass (139-164)
The Las-Stik Mfg Co B & Wayne sts Hamilton Ohio
Mar-Kay Mfg Co 2715 S Second St St Louis Mo
Minnesota Linseed Oil Paint Co 1101 Third So Minneapolis 15 Minn
Ira Parker & Sons Co Oshkosh Wis (76)
Pecora Paint Co American & Venango Philadelphia 40 Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Plastic Prod Co 6475 Georgia Av Detroit 11 Mich
Presstite Engineering Co St Louis 10 Mo
Savogran Co Boston 10 Mass (170)
Schalk Chem Co Los Angeles 12 Cal
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Webb Products Co San Bernardino Calif & Norcross Ga (surfacing) (172)
The Wellman Products Co 1444 E 49th Cleveland 3 Ohio
Geo D Wetherill & Co Philadelphia Pa

PUTTY—metal sash

Adams Co Dubuque Ia
Allen Putty Prods Co 340 N Ashland Av Chgo Ill
Armstrong Co 4065 S La Salle Chgo 9 Ill (161)
Biddle Co St Louis 2 Mo (164)
Blue Ridge Talc Co Inc Henry Va
Briggs Maroney Co Inc Everett 49 Mass
Chi-Namel Paint & Varnish Co Minneapolis Minn
Detroit Steel Products Co Detroit 11 Mich
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Dicks-Pontius Co Dayton O
Felton Sibley & Co Inc 136 N 4th Philadelphia 6 Pa
Forman Ford & Co Minneapolis 1 Minn
Fort Pitt Chem Co Pittsburgh 22 Pa
W P Fuller & Co 301 Mission San Fran 19 Cal
The Glidden Co 11001 Madison Av Cleveland 2 Ohio
Gumputtie Laboratories 2221 S Archer Av Chicago 16 Ill
Landen Putty Works Malden 48 Mass (139-164)
Minnesota Linseed Oil Paint Co Minneapolis Minn
Ira Parker & Sons Co Oshkosh Wis (76)
Pecora Paint Co Philadelphia Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Plastic Prod Co 6475 Georgia Av Detroit 11 Mich
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass

PUTTY—rubber

Baltimore Paint & Color Works Baltimore 23 Md
The B F Goodrich Co Akron Ohio

Number in parenthesis indicates page on which advertisement appears

Gumputtie Laboratories 2221 S Archer Av Chicago 16 Ill
So-Lo Wks Inc Loveland O
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo

PUTTY—water

Carbola Chemical Co Inc Natural Bridge N Y
Donald Durham Co Des Moines 4 Ia (184)
H B Fuller Co St Paul 2 Minn
Reliable Paste Co 3560 Shields Av Chicago Ill
The Savogran Co India Wharf Boston 10 Mass 170
Steelcote Mfg Co St Louis 3 Mo
Tamms Silica Co 228 N LaSalle Chgo 1 Ill

PUTTY SOFTENERS

Fletcher Terry Co Forestville Conn (305)
Glaziers Tool Mfg Corp 611 W Adams Chgo Ill
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Tamms Silica Co 228 N LaSalle Chgo 1 Ill

QUICKLIME—pulverized

Kelley Island Lime & Transport Co Cleveland 14 Ohio
Louisville Cement Co Inc 315 Guthrie Louisville 2 Ky
Mission Lime Products Corp Los Angeles 12 Calif
National Gypsum Co Buffalo 2 N Y (198-199)
U S Gypsum Co 300 W Adams Chgo 6 Ill

RACKS—clothes

Acme Metal Goods Mfg Co Newark N J
Chicago Curtain Stretcher Co 1127 W 37th Chgo 9 Ill
J R Clark Co Minneapolis 5 Minn
Handy Things Mfg Co Ludington Mich
Knape & Vogt Mfg Co Grand Rapids 4 Mich (also shoe, hat, tie)
Michigan Ladder Co Ypsilanti Mich
Moulton Ladder Mfg Co Somerville Mass
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Universal Steel Equipment Corp 135 W 23rd NY NY
Watertown Table-Slide Corp Watertown Wis (wall, folding)
Winner Industries Minneapolis 15 Minn

RACKS—fire hose

W D Allen Mfg Co 566 W Lake Chgo Ill
American-La France-Foamite Corp Elmira N Y
Beall Pipe & Tank Corp Portland Ore
Elkhart Brass Mfg Co Elkhart Ind
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Wirt & Knox Mfg Co Philadelphia 32 Pa

RAFTERS—glued laminated

Rilco Laminated Prod Inc St Paul 1 Minn
Super-Structures Inc Albert Lea Minn
Tacoma Lumber Fabricating Co Tacoma 1 Wash
Timber Structures Inc Portland 8 Ore
Unit Structures Inc Peshtigo Wis

RAILINGS—porch, stair, stoop

The Adams Co Dubuque Iowa (steel)
Cole Mfg Co Memphis 2 Tenn (wood)
Erco Mfg Co 4010 W Montrose Av Chicago 41 Ill (wrought iron)
Fence Co of America 608 S Dearborn St Chicago 6 Ill (iron) (322)
Logan Co Inc Louisville 6 Ky (wrought iron)
Metal Crafters Div Castone Products Co Cedar Rapids Iowa (wrought iron) 305
Newman Bros Inc Cincinnati 3 Ohio (bronze, aluminum, stainless steel)

RANGES—electric

A-B Stoves Div Detroit-Michigan Stove Co Battle Creek Mich
Admiral Corp 3800 W Cortland Chgo 47 Ill
Cavalier Corp Chattanoga Tenn
Crosley Corp Cincinnati O
Crown Stove Wks 4631 W 12th Pl Cicero Ill
Electromaster Inc Detroit Mich
Estate Stove Co Hamilton O
Excelsior Stove & Mfg Co Quincy Ill
Florence Stove Co Gardner Mass
Frigidaire Div General Motors Corp Dayton 1 Ohio
General Electric Co Schenectady 5 N Y
Hotpoint Inc 5600 W Taylor St Chicago 44 Ill
Landers Frary & Clark New Britain Conn
A J Lindemann & Hoverson Co 601 W Cleveland Av Milwaukee 7 Wis
Malleable Iron Range Co Beaver Dam Wis
Nash-Kelvinator Corp Detroit Mich
Norge Div Borg Warner Corp Detroit Mich
Round Oak Co Dowagiac Mich
Westinghouse Electric Corp 306 Fourth Av Pittsburgh 30 Pa (331)

RANGES—gas

A-B Stoves Div Detroit-Michigan Stove Co Battle Creek Mich
The Estate Stove Co Hamilton Ohio
Excelsior Stove & Mfg Co Quincy Ill
Florence Stove Co Gardner Mass
Gray & Dudley Co Nashville Tenn
Malleable Iron Range Co Beaver Dam Wis
Geo D Roper Corp Rockford Ill

REFRACTORIES—plastic

Acme Brick Co Fort Worth 2 Texas
The Babcock & Wilcox Co 85 Liberty St New York 6 NY
Carborundum Co Niagara Falls NY
Chicago Fire Brick Co 1461 N Elston Chgo Ill
M E Curtis Mfg Co 29 Lewis Wharf Boston 10 Mass
Denver Fire Clay Co Denver Colo
General Refractories Co Philadelphia Pa
Gladding McBean & Co San Francisco 3 Calif
Harbison Walker Refractories Co Farmers Bank Bldg Pittsburgh Pa
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Laclede-Christy Clay Prods Co St Louis Mo
Mexico Refractories Co Mexico Mo
North American Refractories Co Cleveland 14 O
Plibrico Jointless Firebrick Co 1800 N Kingsbury Chgo 14 Ill
Quigley Co Inc 527 Fifth Av New York 17 N Y
Seaboard Refractories Perth Amboy N J
Walsh Refractories Corp St Louis 7 Mo
Washington Brick & Lime Co Spokane 8 Wash

REFRIGERATORS—electric

Admiral Corp 3800 W Cortland Chgo 47 Ill
Chrysler Corp Airtemp Div Dayton 1 Ohio (commercial)
Coolerator Co Box 399 Duluth 1 Minn
Copeland Refrigeration Corp Sidney Ohio
Crosley Corp Cincinnati O
Frigidaire Div General Motors Corp Dayton 1 Ohio
General Electric Co Schenectady 5 N Y
General Refrigerator Corp 678 Broadway New York 12 N Y
Gibson Electric Refrigerator Corp Greenville Mich
Hotpoint Inc 5600 W Taylor St Chicago 44 Ill
Jewett Refrigerator Co Buffalo N Y
McQuay Inc Minneapolis 13 Minn (commercial)
Nash-Kelvinator Corp Detroit Mich
Norge Div Borg Warner Corp Detroit Mich
Potter Refrigerator Corp Buffalo N Y
Seeger-Sunbeam Corp St Paul 6 Minn
Stewart-Warner Corp 1828 Diversey Pkwy Chgo Ill

REFRIGERATORS—gas

Servel Inc Evansville Ind

REGISTERS—heating & ventilating

Air Control Products Inc Coopersville Mich (101)
American Foundry & Furnace Co Bloomington Ill
Auer Register Co Cleveland O
Excelsior Stove & Mfg Co Quincy Ill
Forest City Foundries Co Cleveland O
Hart & Cooley Mfg Co Holland Mich
Liberty Foundry Co St Louis Mo
J Mueller Furnace Co Milwaukee Wis
Philadelphia Hdwe & Malleable Iron Wks Philadelphia Pa
U S Register Co Battle Creek Mich
Williamson Heater Co Cincinnati O

RESIN—synthetic

Casein Co of America 350 Madison Av New York 17 N Y (181)
Catalin Corp 1 Park Av NY 16 NY
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
E I DuPont de Nemours & Co Inc Wilmington Del
Durite Plastics Inc 5000 Summerdale Av Philadelphia 24 Pa
General Electric Co Schenectady 5 N Y
Industrial Chemical Sales Div West Virginia Pulp & Paper Co New York Central Bldg NY NY
Marblette Corp 37-21 30th Long Island City N Y
John W Masury & Son Sharp & Ostend Baltimore Md
Monite Waterproof Glue Co Minneapolis 11 Minn
Monsanto Chemical Co St Louis Mo
The Neville Co Neville Island Pittsburgh 25 Pa
Paisley Products Inc 1770 Canalport Av Chicago 16 Ill
Perkins Glue Co Lansdale Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
The Resinous Products & Chemical Co Philadelphia 5 Pa
Resinox Corp 30 Rockefeller Plz NY NY

RIDGE ROLL

American Steel & Wire Co Cleveland O (309)
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Bethlehem Steel Co Bethlehem Pa
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Chase Brass & Copper Co Waterbury 91 Conn
Cincinnati Sheet Metal & Roofing Co Cincinnati 2 Ohio
Globe Iron Roofing & Corrugating Co Inc Newport Ky
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Klauer Mfg Co Dubuque Ia
La Crosse Steel Roofing & Corrugating Co La Crosse Wis
Lehon Co 4425 S Oakley Chgo Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Milcor Steel Co 4027 W Burnham St Milwaukee 4 Wis (319)
Newport Rolling Mill Co Newport Ky
Northwest Metal Prod Inc Seattle 4 Wash
Reeves Steel & Mfg Co Dover O
Republic Steel Corp Republic Bldg Cleveland 1 Ohio
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
St Paul Corrugating Co St Paul Minn
Tennessee Coal Iron & R R Co Birmingham Ala (309)
Williams-Wallace Co San Francisco 7 Cal

RODS—threaded

Bethlehem Steel Co Bethlehem Pa
Carpenter & Paterson Inc 1190 Bennington East Boston 28 Mass
Cleveland Steel Specialty Co Cleveland 5 Ohio
Decatur Iron & Steel Co Decatur Ala
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Kelly Steel Works Inc 5767 W 65th Chgo 38 Ill
Laclede Steel Co St Louis 1 Mo
Lewis Bolt & Nut Co Minneapolis 14 Minn
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
National Screw & Mfg Co Cleveland 4 Ohio
Newhall Chain Forge & Iron Co 48 W Broadway New York 7 N Y
Pheoll Mfg Co 5700 W Roosevelt Rd Chgo 50 Ill
Republic Steel Corp Cleveland O
Sheffield Steel Corp Kansas City Mo
Upson-Walton Co Cleveland O

ROLLOFF BODIES—truck

Beall Pipe & Tank Corp Portland Ore
Carter Mfg Co Memphis 2 Tenn
The R B Company Kansas City 1 Mo (501)
Stimmel Winch Co 37-24 33rd St Long Island City 1 N Y (rollers only)
A Streich & Bros Co Oshkosh Wis
Wentworth & Irwin Inc Portland 14 Ore

Number in parenthesis indicates page on which advertisement appears

ROOF COATING

Haynes Products Co Omaha 3 Neb
Richkraft Co Builders Bldg Chicago Ill (250-251)

ROOF COATING—asphalt

Abesto Mfg Corp Michigan City Ind
Acme Asbestos Covering & Flooring Co 244 N Elizabeth Chgo 7 Ill
American Asphalt Roof Corp Kansas City Mo
American Marietta Co 43 E Ohio Chgo 11 Ill
Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Barber Asphalt Corp 30 Rockefeller Plaza New York 20 N Y
Barrett Div Allied Chem & Dye Corp 40 Rector St NY NY (223)
Bird & Son Walpole Mass
Philip Carey Mfg Co Cincinnati 15 O (235)
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Prod Corp 120 S LaSalle Chgo Ill (215)
The Dad & Lad Co New Lenox Ill
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Ensign Products Co Cleveland 5 Ohio
Flintkote Corp 30 Rockefeller Plaza NY NY
Globe Roofing Prod Co Inc Whiting Ind
Geo C Gordon Chemical Co Kansas City 7 Mo
Inter-State Oil Co Kansas City 3 Kan
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Keystone Asphalt Products Co 43 E Ohio St Chicago 11 Ill
Lastik Products Co Inc Pittsburgh 22 Pa
The Martin-Senour Co 2520 S Quarry Chgo 8 Ill
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
Republic Creosoting Co Indianapolis 4 Ind
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
Rutland Fire Clay Co Rutland Vt
Sealcon Prod Inc 927 Second Av S Minneapolis 2 Minn
Servicized Products Corp 6051 W 65th St Chicago 38 Ill
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (192)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
The Sullivan Co P O Box 2606 Memphis 2 Tenn
The Texas Co 135 E 42nd NY NY (217)
United States Gypsum Co 300 W Adams Chgo Ill

ROOFING—aluminum sheet

Ames Metal Moulding Co Inc 228 E 144th St New York 51 N Y
Aluminum Co of America Pittsburgh 19 Pa (136-137)
Cheney Industries Trenton 5 N J
Metal Building Products Co Detroit Mich (clapboard)
Nichols Wire & Steel Co Davenport Ia (219)
Southern States Iron Roofing Co Savannah Ga

ROOFING—asbestos

The Philip Carey Mfg Co Lockland Cincinnati 15 Ohio (235)
Ehret Magnesia Mfg Co Valley Forge Pa
The Flinkote Co 30 Rockefeller Plaza New York 20 N Y
Johns-Manville Sales Corp 22 E 44th New York 16 NY (224)
Keasbey & Mattison Co Ambler Pa
The Ruberoid Co 500 Fifth Av New York 18 N Y (196)

ROOFING—asphalt roll

American Asphalt Roof Corp Kansas City Mo
Barrett Div Allied Chem & Dye Corp 40 Rector NY NY (223)
Bird & Son Inc East Walpole Mass
Philip Carey Mfg Co Cincinnati 15 O (235)
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Prod Corp 120 S LaSalle Chgo Ill (215)
Flintkote Co 30 Rockefeller Plaza NY NY
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
Globe Roofing Prod Co Inc Whiting Ind
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Jones & Brown Inc Pittsburgh Pa
Koppers Co Inc Pittsburgh 19 Pa
Lehon Co 4425 S Oakley Chgo Ill
Logan-Long Co 37 W Van Buren St Chicago 5 Ill
B F Nelson Mfg Co Minneapolis 13 Minn
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Ruberoid Co 500 Fifth Av NY NY (196)
Tamko Asphalt Products Inc Joplin Mo
The Texas Co 135 E 42nd NY NY (217)
United States Gypsum Co 300 W Adams Chgo Ill

ROOFING—steel

American Steel & Wire Co Cleveland O (309)
Bethlehem Steel Corp Bethlehem Pa
Carnegie Illinois Steel Corp Pittsburgh Pa
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Cheney Industries Trenton 5 N J
Cincinnati Sheet Metal & Roofing Co Cincinnati 2 Ohio
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Detroit Steel Products Co Detroit 11 Mich
Goldsmith Metal Lath Co Cincinnati 32 Ohio
Inland Steel Co 38 S Dearborn Chgo 3 Ill
Klauer Mfg Co Dubuque Iowa
Mid-States Steel & Wire Co Crawfordsville Ind
Milcor Steel Co 4027 W Burnham St Milwaukee 4 Wis (319)
Nichols Wire & Steel Co Davenport Ia (219)
Reeves Steel & Mfg Co Dover Ohio
Republic Steel Corp Republic Bldg Cleveland 1 Ohio
St Paul Corrugating Co St Paul Minn
St Paul Foundry & Mfg Co St Paul 3 Minn
Southern States Iron Roofing Co Savannah Ga
Tennessee Coal Iron & R R Co Birmingham 2 Ala (309)
Truscon Steel Co Youngstown O
U S Gypsum Co 300 W Adams Chgo 6 Ill
Wheeling Corrugating Co Wheeling V Va (357)

ROOFING KNIVES

Modern Specialties Co 4140 W Harrison St Chicago 24 Ill (200)

ROPE—awning

Geo B Carpenter & Co 440 N Wells Chgo Ill
Edwin H Fitler Co Philadelphia Pa
John H Graham & Co Inc 105 Duane NY 8 NY
Hoffman Lion Mills Co Inc Fall River Mass
Plymouth Cordage Co North Plymouth Mass
Puritan Cordage Mills Mallison Braided Cord Division Athens Ga (275)
Puritan Cordage Mills Louisville Ky (275)
St Louis Cordage Mills St Louis Mo
Samson Cordage Works 89 Broad Boston 10 Mass (300)
The Turner & Stanton Co Norwich Conn

ROPE—manila & sisal

American Mfg Co Noble & West Sts Brooklyn 22 N Y
Cating Rope Wks Ind Maspeth N Y
Geo B Carpenter & Co 440 N Wells Chgo Ill
Columbian Rope Co Auburn N Y
Edwin H Fitler Co Philadelphia Pa
Hoffman Lion Mills Co Inc Fall River Mass
Hooven & Allison Co Xenia O
Thos Jackson & Son Co Reading Pa
R A Kelly Co Xenia O
New Bedford Cordage Co 233 Broadway NY NY
Plymouth Cordage Co North Plymouth Mass
St Louis Cordage Mills St Louis Mo
Tubbs Cordage Co San Francisco Cal
Upson-Walton Co Cleveland O
Wall Rope Wks Inc 48 South NY NY
Waterbury Rope Co 401 Park Av Brooklyn N Y
Whitlock Cordage Co 46 South NY NY

ROPE—wire

American Cable Div American Chain & Cable Co Inc Wilkes-Barre Pa
American Steel & Wire Co Cleveland O (309)
Broderick & Bascom Rope Co St Louis Mo
Colorado Fuel & Iron Corp Denver Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Hazard Wire Rope Div American Chain & Cable Co Inc Wilkes-Barre Pa
Macwhyte Co Kenosha Wis
John A. Roebling's Sons Co Trenton N J
Upson-Walton Co Cleveland O
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y

RULES—board and log

Frank H Buck & Co 2133 W Touhy Ave Chicago 45 Ill (409)
Lufkin Rule Co Saginaw Mich
Parisian Novelty Co 3510 S Western Av Chicago 9 Ill

RULES—folding

Eugene Dietzgen Co 22 W Monroe Chgo Ill
Eagle Rule Mfg Corp 517 Hunts Point Av New York 59 N Y
Keuffel & Esser Co Hoboken N J
Lufkin Rule Co Saginaw Mich
Master Rule Mfg Co Inc 815 E 136th NY NY
The Stanley Wks New Britain Conn (272)
L S Starrett Co Athol Mass

RULES—slide

Eugene Dietzgen Co 2425 N Sheffield Chgo Ill
Keuffel & Esser Co Hoboken N J
Parisian Novelty Co 3510 S Western Av Chicago 9 Ill
Pickett & Eckel 53 W Jackson Blvd Chgo 4 Ill
L S Starrett Co Athol Mass
Warren-Knight Co Philadelphia 7 Pa

RULES—steel

Brown & Sharpe Mfg Co 235 Promenade St Providence 1 R I
Keuffel & Esser Co Hoboken N J
Lufkin Rule Co Saginaw Mich
Master Rule Mfg Co 815 E 136th NY NY
Millers Falls Co Greenfield Mass
Ox-Wall Tool Co 928 Broadway New York 10 N Y
Parisian Novelty Co 3510 S Western Av Chicago 9 Ill
Shedd-Brown Mfg Co Minneapolis 15 Minn
The Stanley Wks New Britain Conn (272)
L S Starrett Co Athol Mass
Union Tool Co Orange Mass

RUST PREVENTING & REMOVING COMPOUNDS

American Chemical Paint Co Ambler Pa
Babbitt Steam Specialty Co New Bedford Mass
Carbozite Corp Pittsburgh Pa
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Ensign Products Co Cleveland 5 Ohio
R M Hollingshead Corp Camden N J
Inter-State Oil Co Kansas City 3 Kan
Neilson Chemical Co Detroit Mich
Non-Corrosive Products Co Huntington Park Cal
Nox-Rust Chemical Corp 2425 S Halsted Chgo 8 Ill
Oakite Products Inc 22 Thames New York 6 N Y
Penetone Co Tenafly N J
Pennsylvania Salt Mfg Co Philadelphia 7 Pa
Pittsburgh Plate Glass Co Pittsburgh 19 Pa (169)
Reilly Tar & Chemical Corp Indianapolis 4 Ind
Rustlcide Products Co Cleveland 14 Ohio
The Simoniz Co Industrial Div 2100 S Indiana Av Chgo Ill
Smith Oil & Refining Co Rockford Ill
L Sonneborn Sons Inc Bldg Products Div 88 Lexington Av New York 16 N Y (182)
Steelcote Mfg Co St Louis 3 Mo
Stop-Rust Co Chattanooga Tenn
The Sullivan Co Memphis 2 Tenn
Wayne Chemical Products Co Detroit 17 Mich
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass

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SAND BLAST EQUIPMENT

American Foundry Equipment Co Mishawaka Ind
The Macleod Co Cincinnati 22 Ohio

SANDER HEADS—brush backed

Arcade Mfg Co Freeport Ill
Vonnegut Moulder Corp Indianapolis 2 Ind

SANDERS—belt, drum, spindle & disc

American Floor Surfacing Machine Co Toledo 3 Ohio (belt, portable) (208)
American Mfg Co Inc Tacoma 2 Wash (404)
Beach Mfg Co Montrose Pa
Black & Decker Mfg Co Towson Md
Boice Crane Co Toledo 6 O
Chicago Pneumatic Tool Co 6 E 44th St New York 17 N Y (disc only)
James Clark Jr Electric Co Inc Louisville 3 Ky (disc only)
Crescent Machine Co Leetonia Ohio (spindle & disc only)
Delta Mfg Co Milwaukee 1 Wis (belt & disc)
Ekstrom, Carlson & Coe Rockford Ill
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
Independent Pneumatic Tool Co 600 W Jackson Blvd Chicago 6 Ill
Mall Tool Co 7733 South Chicago Av Chgo Ill (283)
Millers Falls Co Greenfield Mass
Milwaukee Electric Tool Corp Milwaukee 8 Wis
Oliver Machinery Co Grand Rapids 2 Mich
Porter Cable Mach Co Syracuse 8 NY
Red Devil Tools Irvington 11 N J (288)
Reid-Way Inc Cedar Rapids Iowa
Skilsaw Inc 5033 Elston Av Chgo 30 Ill
Stanley Electric Tools 111 Elm New Britain Conn (272)
Walker Turner Co Inc Plainfield N J

SANDERS—floor

American Floor Surfacing Mach Co Toledo O (208)
Atlas Floor Surfacing Mach Corp 248 E 34th NY 16 NY
Black & Decker Mfg Co Towson Md
Clarke Sanding Mach Co Muskegon 82 Mich
Electric Sprayit Co Sheboygan Wis
Hilger Co St Cloud Minn
Holt Mfg Co Oakland Cal
Lincoln-Schlueter Floor Mchy Co 512 S Peoria Chgo Ill
Mall Tool Co 7733 S South Chicago Av Chgo 19 Ill (283)
The Master Woodworker Mfg Co Inc Detroit 26 Mich
Porter Cable Mach Co Syracuse N Y
Red Devil Tools Irvington 11 NJ (288)
Reid-Way Inc Cedar Rapids Iowa
Skilsaw Inc 5033 N Elston Av Chgo 30 Ill

SANDERS—portable, electric

Porter Cable Machine Co Syracuse 8 NY
Sterling Tool Products Co 363 E Ohio St Chicago Ill
Skilsaw Inc 5033 N Elston Av Chicago 30 Ill

SANDING MACHINE DISCS

Abrasive Products Inc South Braintree Mass
Armour Sandpaper Works 1355 W 31st St Chicago 9 Ill
Carborundum Co Niagara Falls N Y
Clarke Sanding Machine Co Muskegon 82 Mich
Clover Mfg Co Norwalk Conn
Mid-West Abrasive Co Detroit Mich
Milwaukee Electric Tool Corp Milwaukee 2 Wis
Minnesota Mining & Mfg Co St Paul 6 Minn
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Porter Cable Mach Co Syracuse 8 NY
Red Devil Tools Irvington 11 NJ (288)
Reid-Way Inc Cedar Rapids Iowa
Sandpaper Inc Rockland Mass
Skilsaw Inc 5033 Elston Av Chgo 30 Ill

SANDPAPER

Abrasive Prod Inc South Braintree Mass
Armour Sandpaper Works 1355 W 31st St Chicago 9 Ill
Behr-Manning Corp Troy N Y
Carborundum Co Niagara Falls N Y
Clover Mfg Co Norwalk Conn
Mid-West Abrasive Co Detroit Mich
Minnesota Mining & Mfg Co St Paul Minn
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Porter Cable Mach Co Syracuse 8 NY
Red Devil Tools Irvington 11 NJ (288)
Reid-Way Inc Cedar Rapids Iowa
Sandpaper Inc Rockland Mass

SASH—storm, wood

Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co Box 2657 Memphis 2 Tenn
Continental Screen Co Detroit 26 Mich (119)
Farley & Loetscher Mfg Co Dubuque Ia
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Northwest Door & Plywood Sales Tacoma 1 Wash
Segelke & Kohlhaus Co La Crosse Wis
Geo J Silbernagel 8 S Michigan Av Chicago 3 Ill
Geo Silbernagel & Sons Co Wausau Wis
Frank C Snedaker & Co Inc Philadelphia 40 Pa

SASH—storm, metal

Samson Products Co 4238 N Leavitt St Chicago 18 Ill

SASH BALANCES—adjustable

Austin & Eddy Inc P O Box 1504 Boston 4 Mass
Caldwell Mfg Co Rochester 4 N Y (143)
Duplex Inc 634 N LaPeer Dr Los Angeles 46 Cal (135)
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
Pullman Mfg Corp Rochester 7 N Y (141)
Turner & Seymour Mfg Co Torrington Conn
Western Foundry Co 2400 S W Water Av Portland 1 Ore

SASH BALANCES—spiral

Austin & Eddy Inc P O Box 1504 Boston 4 Mass
Caldwell Mfg Co Rochester 4 N Y (143)
Milwaukee Stamping Co Milwaukee 14 Wis (139)
Unique Balance Co Inc 25 Eastern Blvd NY NY
Western Foundry Co 2400 S W Water Av Portland 1 Ore

SASH BALANCES—spring

Acme Spring Sash Balance Co Los Angeles Cal
Austin & Eddy Inc P O Box 1504 Boston 4 Mass
Caldwell Mfg Co Rochester 4 NY (143)
Duplex Inc 634 N LaPeer Dr Los Angeles 46 Cal (135)
Grand Rapids Hdwe Co Grand Rapids Mich (145)
Master Metal Strip Service Inc 1720 N Kilbourn Av Chicago 39 Ill
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
Pullman Mfg Corp Rochester 7 N Y (141)
Turner & Seymour Mfg Co Torrington Conn
Unique Balance Co Inc 25 Eastern Blvd NY NY
Western Foundry Co 2400 S W Water Av Portland 1 Ore
Zegers Inc 5615 Harper Av Chgo 37 Ill (143)

SASH CONTROL

Air-Tite Window Stay Co Chicopee Mass (114)
Hayman Window Co Denver 2 Colo

SASH PULLEYS

Arcade Mfg Co Freeport Ill
Austin & Eddy Inc P O Box 1504 Boston 4 Mass
Champion Hdwe Co Geneva O
Chantrell Hdwe & Tool Co Fitchburg Mass
Cleveland Lock Wks Div Consolidated Iron Steel Mfg Co 1283 E 53rd Cleveland 14 Ohio (145)
P & F Corbin New Britain Conn
Grand Rapids Hdwe Co Grand Rapids Mich (145)
Grant Pulley & Hdwe Co 33-36 57 Woodside Long Island N Y
Natl Lock Co Rockford Ill (293)
Penn Hdwe Co Reading Pa
Phoenix Lock Co Newark 7 N J
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
Russell & Erwin Div The American Hardware Corp New Britain Conn
The Stanley Wks New Britain Conn (272)
Western Foundry Co 2400 S W Water Av Portland 1 Ore

SASH WEIGHTS

Belmont Smelting & Refining Wks Inc 330 Belmont Av Brooklyn N Y
Grey Iron Casting Co Mt Joy Pa
Industrial Iron Works Portland 1 Ore
Johnston & Jennings Co Cleveland O
King Stove & Range Co Sheffield Ala
Quinn Wire & Iron Wks Boone Ia
Thayer Fdry Co Atchison Kan
Waterbury Fdry Co Waterbury Conn
Western Fdry Co Portland 1 Ore
Western Fdry & Sash Weight Co St Louis Mo
Yonkers Sash Weight Corp Yonkers 1 N Y

SAW GUARDS

American Saw Mill Mchry Co Hackettstown N J
E C Atkins & Co Indianapolis Ind
Beach Mfg Co Montrose Pa
Boice Crane Co Toledo 6 Ohio
Corley Mfg Co Chattanooga 1 Tenn
Crescent Machine Co Leetonia O
Equipment Engineering Co St Charles Ill
The Filer & Stowell Co Milwaukee 7 Wis
Oliver Machinery Co Grand Rapids 2 Mich

SAW MANDRELS

E C Atkins & Co Indianapolis 9 Ind
Beach Mfg Co Montrose Pa
Clizbe Bros Mfg Co Plymouth Ind
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Corinth Machinery Co Corinth Miss (388)
Corley Mfg Co Chattanooga 1 Tenn
Cunningham Mchy Co Shreveport La (398)
The Filer & Stowell Co Milwaukee 7 Wis
General Hardware Co Milwaukee 4 Wis
Lane Mfg Co Montpelier Vt (404)
Prescott Co Menominee Mich
Western Foundry Co 2400 S W Water Av Portland 1 Ore
Yates American Mach Co Beloit Wis

SAW REPAIRS & ADJUSTMENTS

E C Atkins & Co Indianapolis 9 Ind
Corley Mfg Co Chattanooga 1 Tenn
Cunningham Mchy Co Shreveport La (398)
Equipment Engineering Co St Charles Ill
E T Lippert Saw Co Pittsburgh 9 Pa
Miner & Son Saw Works Shreveport 90 La
J H Miner Saw Mfg Co Meridian Miss (409)

SAW SHARPENING MACHINES

E C Atkins & Co Indianapolis Ind
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
The Filer & Stowell Co Milwaukee 7 Wis
Foley Mfg Co Minneapolis Minn
Hanchett Mfg Co Big Rapids Mich
Prescott Co Menominee Mich
Samuel S Rogers & Co Buffalo N Y
Wardwell Mfg Co Cleveland 9 O
Yates-American Mach Co Beloit Wis

SAWMILL DOGS

Allis Chalmers Mfg Co Milwaukee Wis (398)
American Saw Mill Mchry Co Hackettstown N J
Chase Turbine Mfg Co Orange Mass
Corinth Machinery Co Corinth Miss (388)
Corley Mfg Co Chattanooga 1 Tenn
Cunningham Mchy Co Shreveport La (398)
The Filer & Stowell Co Milwaukee 7 Wis
Kent Machine Co Cuyahoga Falls Ohio (407)
Lane Mfg Co Montpelier Vt (404)
McDonough Mfg Co Eau Claire Wis
Prescott Co Menominee Mich
The Wheland Co Chattanooga 2 Tenn

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SAWS—band

Allis Chalmers Mfg Co Milwaukee Wis (398)
American Saw Mill Mchry Co Hackettstown N J
E C Atkins & Co Indianapolis 9 Ind
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Crescent Mach Co Leetonia O
Delta Mfg Co Milwaukee Wis
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
Huther Bros Saw Mfg Co Inc Rochester 7 N Y
Parks Woodworking Mach Cincinnati O
Sandvik Saw & Tool Corp 47 Warren NY NY
Simonds Saw & Steel Co Fitchburg Mass
Walker Turner Co Inc Plainfield N J
J D Wallace & Co 153 S California Av Chgo 12 Ill
Wellman Products Co Cleveland 3 Ohio
S A Woods Machine Co Boston 27 Mass
Yates-American Mach Co Beloit Wis

SAWS—bench

American Saw Mill Mchry Co Hackettstown N J
Arcade Mfg Co Freeport Ill
E C Atkins & Co Indianapolis Ind
Beach Mfg Co Montrose Pa
Boice Crane Co Toledo O
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Delta Mfg Co Milwaukee Wis
DeWalt Prod Corp Lancaster Pa (397)
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Greenlee Bros & Co Rockford Ill
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
Newman Machine Co Inc Greensboro N C
Parks Woodworking Machine Co Cincinnati O
Simonds Saw & Steel Co Fitchburg Mass
Walker Turner Co Inc Plainfield N J
Yates-American Machine Co Beloit Wis

SAWS—bucking

E C Atkins & Co Indianapolis Ind
Cummings Machine Works 9 Melcher Boston 10 Mass
Davey Compressor Co Kent Ohio
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Harry A Lowther Co 141 W Jackson Blvd Chgo 4 Ill
Mall Tool Co 7733 South Chicago Av Chgo 19 Ill (283)
Mill & Mine Supply Co Seattle 4 Wash (399)
Ohlen-Bishop Co Columbus O
Sandvik Saw & Tool Corp 47 Warren New York 7 N Y
Simonds Saw & Steel Co Fitchburg Mass

SAWS—chamfering

E C Atkins & Co Indianapolis 9 Ind
C K L Machinery Co Oshkosh Wis
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Huther Bros Saw Mfg Co Inc Rochester 7 N Y
Simonds Saw & Steel Co Fitchburg Mass

SAWS—circular

American Saw Mill Mchry Co Hackettstown N J
E C Atkins & Co Indianapolis Ind
Beach Mfg Co Montrose Pa
Boice Crane Co Toledo 6 Ohio
Chase Turbine Mfg Co Orange Mass
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Corley Mfg Co Chattanooga 1 Tenn
Delta Mfg Co Milwaukee Wis
DeWalt Prod Corp Lancaster Pa (397)
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Equipment Engineering Co St Charles Ill
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
R Hoe & Co Inc East River & 138th NY NY
Huther Bros Saw Mfg Co Inc Rochester 7 N Y
E T Lippert Saw Co Pittsburgh Pa
Mall Tool Co 7733 So Chicago Av Chgo 19 Ill (283)
The Master Woodworker Mfg Co Inc 409 E Fort Detroit 26 Mich
J H Miner Saw Mfg Co Meridian Miss (409)
Nordberg Mfg Co Milwaukee 7 Wis
Ohlen-Bishop Co Columbus O
Oliver Machinery Co Grand Rapids 2 Mich
Parks Woodworking Machine Co Cincinnati O
L Power & Company 2815 Oakford Philadelphia 46 Pa
Sandvik Saw & Tool Corp 47 Warren New York 7 N Y
Simonds Saw & Steel Co Fitchburg Mass
Walker Turner Co Inc East Plainfield N J
Yates-American Mach Co Beloit Wis

SAWS—circular dado

American Saw Mill Mchry Co Hackettstown N J
E C Atkins & Co Indianapolis 9 Ind
Beach Mfg Co Montrose Pa
Boice Crane Co Toledo 6 Ohio
DeWalt Prod Corp Lancaster Pa (397)
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Equipment Engineering Co St Charles Ill
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
Huther Bros Saw Mfg Co Inc Rochester 7 N Y
The Master Woodworker Mfg Co Inc 409 E Fort Detroit 26 Mich
Simonds Saw & Steel Co Fitchburg Mass

SAWS—cutoff

Allis-Chalmers Mfg Co Milwaukee 1 Wis (398)
American Saw Mill Mchry Co Hackettstown N J
E C Atkins & Co Indianapolis 9 Ind
Beach Mfg Co Montrose Pa
C K L Machinery Co Oshkosh Wis
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Corley Mfg Co Chattanooga 1 Tenn
Crescent Mach Co Leetonia O
DeWalt Prod Corp Lancaster Pa (397)
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Equipment Engineering Co St Charles Ill
J A Fay & Egan Co Cincinnati O
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
Huther Bros Saw Mfg Co Inc Rochester 7 N Y
The Master Woodworker Mfg Co Inc 409 E Fort Detroit 26 Mich
Mattison Machine Works Rockford Ill
Ohlen-Bishop Co Columbus O
Oliver Machinery Co Grand Rapids 2 Mich
C O Porter Machinery Co 666-668 Front Av N W Grand Rapids 4 Mich
St Paul Foundry & Mfg Co St Paul 3 Minn
Sandvik Saw & Tool Corp 47 Warren New York 7 N Y
Simonds Saw & Steel Co Fitchburg Mass
Stetson-Ross Mach Co Seattle 4 Wash
Witte Engine Works Div of Oil Well Supply Co Kansas City 3 Mo
S A Woods Machine Co Boston 27 Mass
Yates-American Mach Co Beloit Wis

SAWS—grooving

E C Atkins & Co Indianapolis 9 Ind
Beach Mfg Co Montrose Pa
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
Huther Bros Saw Mfg Co Inc Rochester 7 N Y
Ohlen-Bishop Co Columbus O
Simonds Saw & Steel Co Fitchburg Mass
S A Woods Machine Co Boston 27 Mass
Woodworkers Tool Wks 222 S Jefferson Chgo Ill

SAWS—hand

American Saw & Mfg Co Springfield Mass
E C Atkins & Co Indianapolis 9 Ind
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Mephisto Tool Co Inc Hudson NY
Sandvik Saw & Tool Corp 47 Warren NY NY
L S Starrett Co Athol Mass
The Wellman Products Co Cleveland 3 O

SAWS—hole

Black & Decker Mfg Co Towson 4 Md
Circo Tool Co Milwaukee 3 Wis
Misener Mfg Co Inc Syracuse 2 N Y

SAWS—hack

E C Atkins & Co Indianapolis 9 Ind
Millers Falls Co Greenfield Mass

SAWS—inserted tooth circular

American Saw Mill Machinery Co Hackettstown N J
E C Atkins & Co Indianapolis 9 Ind
Chase Turbine Mfg Co Orange Mass
Chattanooga Saw Wks Chattanooga Tenn
Corley Mfg Co Chattanooga 1 Tenn
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
R Hoe & Co Inc 910 E 138th NY 54 NY
Huther Bros Saw Mfg Co Inc Rochester 7 N Y
E T Lippert Saw Co Pittsburgh Pa
Miner & Son Saw Works Shreveport 90 La
Ohlen-Bishop Co Columbus O
Simonds Saw & Steel Co Fitchburg Mass

SAWS—jig

E C Atkins & Co Indianapolis Ind
Beach Mfg Co Montrose Pa
Boice Crane Co Toledo 6 O
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
Forsberg Mfg Co Bridgeport 1 Conn
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
Oliver Machinery Co Grand Rapids 2 Mich
Walker Turner Co Inc East Plainfield N J

SAWS—metal cutting

E C Atkins & Co Indianapolis 9 Ind (band & circular)
Beach Mfg Co Montrose Pa
Boice Crane Co Toledo 6 Ohio
Delta Mfg Co Milwaukee Wis
DeWalt Prod Corp Lancaster Pa (397)
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
Forsberg Mfg Co Bridgeport 1 Conn
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
Huther Bros Saw Mfg Co Inc Rochester 7 N Y
E T Lippert Saw Co Pittsburgh Pa
Millers Falls Co Greenfield Mass
Oliver Machinery Co Grand Rapids 2 Mich
Sandvik Saw & Tool Corp 47 Warren St New York 7 N Y
Simonds Saw & Steel Co Fitchburg Mass
L S Starrett Co Athol Mass
The Wellman Products Co 1444 E 49th Cleveland 3 Ohio

SAWS—mitre

American Saw Mill Machinery Co Woodworking Mchry Div Hackettstown N J
E C Atkins & Co Indianapolis 9 Ind
Beach Mfg Co Montrose Pa
DeWalt Prod Corp Lancaster Pa (397)
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Equipment Engineering Co St Charles Ill
J A Fay & Egan Co Cincinnati O
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
Huther Bros Saw Mfg Co Inc Rochester 7 N Y
Ohlen-Bishop Co Columbus O
Oliver Machinery Co Grand Rapids 1 Mich
Simonds Saw & Steel Co Fitchburg Mass

SAWS—muley

E C Atkins & Co Indianapolis 9 Ind
Ohlen-Bishop Co Columbus O

SAWS—portable electric

American Floor Surfacing Machine Co Toledo 3 Ohio (208)
American Saw Mill Machinery Co Woodworking Mchry Div Hackettstown N J

Number in parenthesis indicates page on which advertisement appears

E C Atkins & Co Indianapolis 9 Ind
Beach Mfg Co Montrose Pa
Black & Decker Mfg Co Towson Md
Casey Mfg Co Oshkosh Wis
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Equipment Engineering Co St Charles Ill
Independent Pneumatic Tool Co 600 W Jackson Chgo 6 Ill
Mall Tool Co 7733 So Chicago Av Chgo 19 Ill (283)
The Master Woodworker Mfg Co Inc 409 E Fort Detroit 26 Mich
Nordberg Mfg Co Milwaukee 7 Wis
Porter Cable Machine Co Syracuse N Y
Skilsaw Inc 5033 N Elston Chgo Ill
Stanley Electric Tools 111 Elm New Britain Conn (272)
U S Electrical Tool Co Cincinnati 14 O
The Vulcan Iron Works Co Denver 2 Colo
Fred W Wappat Mayville N Y (407)
The Wellman Products Co 1444 E 49th Cleveland 3 Ohio

SAWS—power, tree falling & log bucking

E C Atkins & Co Indianapolis Ind
Cummings Machine Works 9-11 Melcher Boston 10 Mass
Davey Compressor Co Kent Ohio
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Hansen Mach & Supply Co 820 Broadway Eureka Cal
Lafayette Metal Products Co Oakland Calif
Lombard Governor Corp Ashland Mass
Harry A. Lowther Co 141 W Jackson Chgo 4 Ill
Mall Tool Co 7733 So Chicago Av Chgo 19 Ill (283)
Mill & Mine Supply Co Seattle 4 Wash (399)
Ottawa Mfg Co Ottawa Kansas
Reed-Prentice Corp Worcester 4 Mass
The Vulcan Iron Works Co Denver 2 Colo
Witte Engine Works Div of Oil Well Supply Co Kansas City 3 Mo

SAWS—radial

American Saw Mill Mchry Co Hackettstown N J
Beach Mfg Co Montrose Pa
Consolidated Machinery & Supply Co Ltd 2031 Santa Fe Av Los Angeles 21 Calif (402)
Construction Machinery Co Waterloo Iowa
DeWalt Prod Corp Lancaster Pa (397)
Equipment Engineering Co St Charles Ill
Franklin Machine Co East Providence R I
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
The Master Woodworker Mfg Co Inc 409 E Fort Detroit 26 Mich
Porter Cable Mach Co Syracuse N Y
Red Star Products Inc 3455 Vega Av Cleveland Ohio (392-393)
Skilsaw Inc 5033 N Elston Av Chicago 30 Ill
Walker-Turner Co Inc Plainfield N J
J D Wallace & Co 153 So California Av Chgo 12 Ill
Fred W Wappat Mayville N Y (407)

SAWS—rip

American Saw Mill Machinery Co Woodworking Mchry Div Hackettstown N J
E C Atkins & Co Indianapolis 9 Ind
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Corley Mfg Co Chattanooga 1 Tenn
DeWalt Prod Corp Lancaster Pa (397)
Equipment Engineering Co St Charles Ill
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
Simonds Saw & Steel Co Fitchburg Mass

SAWS—solid tooth circular

E C Atkins & Co Indianapolis 9 Ind
Beach Mfg Co Montrose Pa
Corley Mfg Co Chattanooga 1 Tenn
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
R Hoe & Co Inc 910 E 138th NY 54 NY
Huther Bros Saw Mfg Co Inc Rochester 7 NY
E T Lippert Saw Co Pittsburgh 9 Pa
Miner & Son Saw Works Shreveport 90 La
Sandvik Saw & Tool Corp 47 Warren New York 7 N Y
Simonds Saw & Steel Co Fitchburg Mass

SAWS—swing

E C Atkins & Co Indianapolis Ind
Beach Mfg Co Montrose Pa
C H & E Mfg Co Milwaukee 12 Wis
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Corinth Machinery Co Corinth Miss (388)
Corley Mfg Co Chattanooga Tenn
Crescent Machine Co Leetonia O
DeWalt Prod Corp Lancaster Pa (397)
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
The Filer & Stowell Co Milwaukee 7 Wis
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
Lane Mfg Co Montpelier Vt (404)
The Master Woodworker Mfg Co Inc 409 E Fort Detroit 26 Mich
Ohlen-Bishop Co Columbus O
Oliver Machinery Co Grand Rapids 2 Mich
St Paul Foundry & Mfg Co St Paul 3 Minn
S A Woods Machine Co Boston 27 Mass
Yates-American Machine Co Beloit Wis

SAWS—tilting arbor table

American Saw Mill Machinery Co Woodworking Mchry Div Hackettstown N J
E C Atkins & Co Indianapolis 9 Ind
Beach Mfg Co Montrose Pa
Boice Crane Co Toledo 6 Ohio
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
Construction Machinery Co Waterloo Ia
DeWalt Prod Corp Lancaster Pa (397)
J A Fay & Egan Co 1110 Alfred Cincinnati 22 Ohio
The Filer & Stowell Co Milwaukee 7 Wis
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
Oliver Machinery Co Grand Rapids 2 Mich
U S-Challenge Co Batavia Ill
Baxter D Whitney & Son Inc Winchendon Mass
Witte Engine Works Div of Oil Well Supply Co Kansas City 3 Mo

SAWS—variety

E C Atkins & Co Indianapolis Ind
Beach Mfg Co Montrose Pa
C H & E Mfg Co Milwaukee 12 Wis
Consolidated Machinery & Supply Co Ltd Los Angeles 21 Calif (402)
DeWalt Prod Corp Lancaster Pa (397)
Greenlee Bros & Co Rockford Ill
Heston & Anderson Div St Paul Foundry & Mfg Co Fairfield Iowa (410)
The Master Woodworker Mfg Co Inc 409 E Fort Detroit 26 Mich
Oliver Machinery Co Grand Rapids 2 Mich
J D Wallace & Co 153 So California Av Chgo 12 Ill
Baxter D Whitney & Son Inc Winchendon Mass

SAW SWAGES & SHAPERS

E C Atkins & Co Indianapolis 9 Ind

SAW SETS

E C Atkins & Co Indianapolis 9 Ind
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
John H Graham & Co Inc 105 Duane NY 8 NY
Millers Falls Co Greenfield Mass
Sandvick Saw & Tool Corp 47 Warren NY NY
Simonds Saw & Steel Co Fitchburg Mass
The Stanley Wks New Britain Conn (272)
E C Stearns & Co Syracuse N Y

SCAFFOLDS

American Ladder Co 3700 W 35th Chgo Ill
W W Babcock Co Bath N Y
John Berg Mfg Co 5319 S LaSalle Chgo Ill
Breyer Bros Whiting & Co Waupun Wis
J R Clark Co Minneapolis Minn
Construction Machinery Co Waterloo Ia
Deco Vator Scaffolding Corp Detroit Chgo Ill
The Goshen Mfg Co Goshen Ind
Holland Ladder & Mfg Co Holland Mich
Michigan Ladder Co Ypsilanti Mich
Moulton Ladder Mfg Co Somerville Mass
Newark Ladder & Bracket Sales Co Inc 657 S 13th St Newark 3 N J
Rich Ladder & Mfg Co 1000 Depot St Cincinnati 4 O
Ridgely Trimmer Co Springfield O
Safeway Steel Prod Inc Milwaukee 13 Wis
Steel Scaffolding Co Evansville Ind
John S Tilley Ladders Co Inc Watervliet N Y
Timber Structures Inc Portland 8 Ore
Topping Ladder Co Marion N Y
Wagner Mfg Co Cedar Falls Iowa (scaffold brackets)
Warner Mfg Co 801 16th Av SE Minneapolis 14 Minn
Woodenware Prod Corp St Louis 1 Mo
Zoss Ladder & Mfg Co Portland 1 Ore (279)

SCALES—counter

Barnes Prod Inc Detroit Mich
Buffalo Scale Co Buffalo N Y
John Chatillon & Sons 85 Cliff NY NY
Dayton Scale Co Dayton O
The Exact Weight Scale Co Columbus Ohio
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Hanson Scale Co 525 N Ada Chgo Ill
Howe Scale Co Rutland Vt
Toledo Scale Co Toledo O
Triner Scale & Mfg Co 2714 W 21st Chgo Ill

SCALES—moisture content, lumber

John Chatillon & Sons 85 Cliffe New York 7 N Y
Exact Weight Scale Co Columbus O
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Grand Rapids Vapor Kiln Inc Grand Rapids 2 Mich
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Standard Dry Kiln Co Indianapolis Ind
Toledo Scale Co Toledo Ohio

SCALES—platform

American Scale Co Kansas City Mo
Bonded Scale & Machine Co Columbus 7 Ohio
Buffalo Scale Co Buffalo N Y
John Chatillon & Son 85 Cliff NY NY
Dayton Scale Co Dayton O
The Exact Weight Scale Co Columbus Ohio
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Howe Scale Co Rutland Vt
Jacobs Bros Co Inc 1 Main Brooklyn N Y
Toledo Scale Co Toledo O

SCALES—truck

American Scale Co Kansas City 6 Mo
Bonded Scale & Machine Co Columbus 7 Ohio
Buffalo Scale Co Buffalo N Y
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Howe Scale Co Rutland Vt
Toledo Scale Co Toledo O

SCALES—warehouse

American Scale Co Kansas City 6 Mo
Bonded Scale & Machine Co Columbus 7 Ohio
Buffalo Scale & Mfg Co Buffalo N Y
John Chatillon & Sons 85 Cliffe New York 7 N Y
Exact Weight Scale Co Columbus O
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Howe Scale Co Rutland Vt
Toledo Scale Co Toledo O

SCRAPERS—foot

Erco Mfg Co 4010 W Montrose Av Chicago 41 Ill
Grey Iron Casting Co Mt Joy Pa
Lawrence Bros Sterling Ill
National Mfg Co Sterling Ill

Number in parenthesis indicates page on which advertisement appears

SCRAPERS—wood

Fletcher Terry Co Forestville Conn (305)
Millers Falls Co Greenfield Mass
Red Devil Tools Irvington 11 N J (288)

SCREEDS—base

Consolidated Expanded Metals Cos
Knapp Bros Mfg Co Joliet Ill
Milcor Steel Co 4101 W Burnham Milwaukee 4 Wis (319)
Penn Metal Co Inc Parkersburg W Va (359)
Truscon Steel Co Youngstown O
United States Gypsum Co 300 W Adams Chgo 6 Ill

SCREEN WIRE—plastic

Chicopee Mfg Corp Lumite Div 47 Worth St New York 13 N Y (281)
Dow Chemical Co Midland Mich
Firestone Industrial Products Co 1200 Firestone Pkway Akron 17 Ohio (276)
Flex-O-Glass Mfg Co 1100 N Cicero Av Chicago 51 Ill (2)
New York Wire Cloth Co 500 5th Av NY NY
The Visking Corp Pierce Plastic Div 6733 W 65th St Chicago 38 Ill
Warp Bros 1100 N Cicero Av Chicago 51 Ill (2)

SCREEN WIRE

American Brass Co Waterbury Conn
American Wire Fabrics Corp 500 5 Av NY NY
Chase Brass & Copper Co Waterbury Conn
Clinton Wire Cloth Co Clinton Ia
Colorado Fuel & Iron Corp Denver Colo
Cyclone Fence Div American Steel & Wire Co P O Box 260 Waukegan 1 Ill
Driver-Harris Co Harrison N J
Gilbert & Bennett Mfg Co Blue Island Ill
Hanover Wire Cloth Co Hanover Pa
Ingersoll Steel & Disc Div Borg Warner Corp 310 S Michigan Av Chgo Ill
C O Jelliff Mfg Corp Southport Conn
Keystone Steel & Wire Co Peoria Ill
New York Wire Cloth Co 500 5th Av NY NY
Pennwoven Inc Lock Haven Pa
Pequot Wire Cloth Co Inc So Norwalk Conn
John A Roebling's Sons Co Trenton N J
Seneca Wire & Mfg Co Fostoria O (302)
Wickwire Bros Inc Cortland N Y (303)
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y

SCREENS—door & window, metal frame

Adams Co Dubuque Ia
A W Barnhart Co Port Chester N Y
Brasco Mfg Co Harvey Ill
W J Dennis & Co 1732 N Kolmar Av Chgo 39 Ill
Detroit Steel Prods Co Detroit Mich
Gabriel Steel Co Detroit Mich
Gold Seal Mfg Co 1228 W Kinzie Chgo 22 Ill
Hope's Windows Inc Jamestown NY
Ingersoll Steel Div Borg Warner Corp 310 S Michigan Av Chgo 4 Ill
Johnson Metal Products Co Erie Pa
Kane Mfg Corp Kane Pa
Kewanee Mfg Co Kewanee Ill
Mesker Bros 433 So 7th St St Louis Mo (116-117)
Metalcraft Co Boston 20 Mass
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
Rudiger Lang Co Berkeley Cal
Samson Products Co 4238 N Leavitt Av Chgo 18 Ill
Soule Steel Co San Francisco 24 Cal
Southern Wire & Iron Works Atlanta Ga
Truscon Steel Co Youngstown O
Universal Fabricators 1801 Boone Av Bronx 60 N Y

SCREENS—door & window, wood frame

American Sash & Door Co Kan City Mo
Angel Novelty Co Fitchburg Mass
A W Barnhart Co Port Chester N Y
Bradley Miller & Co Bay City Mich
Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co Memphis Tenn
Continental Screen Co Detroit 26 Mich (119)
Curtis Cos Inc Clinton Ia
W J Dennis & Co 1732 N Kolmar Av Chgo 39 Ill
Farley & Loetscher Mfg Co Dubuque Iowa
Fordyce-Crossett Sales Co Fordyce Ark
Gen'l Woodcraft Co Inc North Bergen N J
Gregg & Son Nashua N H (125)
Hayman Window Co Denver 2 Colo
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
Ideal Co Box 889 Waco Tex
Kane Mfg Corp Kane Pa
The Long-Bell Lumber Co Kansas City 6 Mo
Marquart Millwork Co Oshkosh Wis (139)
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
National Screen Door Co Montgomery 3 Ala
Northwest Door & Plywood Sales Tacoma 1 Wash
Pacific Mutual Door Co Tacoma Wash
The Radford Co Oshkosh Wis
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Wks Rock Island Ill
Rudiger-Lang Co Berkeley 2 Calif
F E Schumacher Co Hartville O
Segelke & Kohlhaus Co La Crosse Wis
George J Silbernagel 8 S Michigan Av Chicago 3 Ill
Geo Silbernagel & Sons Co Wausau Wis
Frank C Snedaker & Co Inc Philadelphia 40 Pa
West Coast Screen Co Los Angeles 1 Cal
White Pine Sash Co Spokane 7 Wash

SCREENS—electric for doors & windows

Detjen Corp 303 W 42nd St New York 18 N Y
Electric Fly Screen Co Inc Lindenhurst L I N Y
Electro-Static Mfg Co Niles Mich
Harvard Electric Co 2608 W Flournoy Chgo Ill
National Elec Screen Corp 549 W Washington Chgo 6 Ill

SCREENS—fireplace

Adams Co Dubuque Ia
A W Barnhart Co Port Chester N Y
Bennett-Ireland Norwich N Y (264)
Chattanooga Implement & Mfg Co Chattanooga 6 Tenn
Colonial Brass Co Middleboro Mass
Colonial Fireplace Co 540 N Cicero Av Chgo 44 Ill
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Hart Mfg Co Louisville 3 Ky
Littlestown Hdw & Fdry Co Littlestown Pa
Logan Co Inc Louisville Ky
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Sheffield Mfg Co 119 W 25 NY NY
John P Smith Co New Haven Conn

SCREENS—rolling window

A W Barnhart Co Port Chester N Y
Higgin Prod Inc Newport Ky
Metalcraft Co Boston 20 Mass
Rolscreen Co Pella Ia
Rudiger Lang Co Berkeley Cal
Universal Roller Screen Co 2055 N Racine Av Chgo Ill

SCREENS—sun deflector

Flex-O-Glass Mfg Co 1100 N Cicero Av Chicago 51 Ill. (2)
Ingersoll Steel Div Borg Warner Corp 310 S Michigan Av Chgo 4 Ill
Warp Bros 1100 N Cicero Av Chicago 51 Ill (2)

SCREW DRIVERS

American Swiss File & Tool Co Elizabeth N J
Otto Bernz Co Rochester N Y
Bonney Forge & Tool Wks Allentown Pa
Bridgeport Hdw Mfg Co Bridgeport 5 Conn
Cornwell Quality Tools Co Mogadore O
Crescent Tool Co Jamestown N Y
Damascus Steel Prod Corp Rockford Ill
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Fairmont Tool & Forging Co 10611 Quincy Av Cleveland Ohio
Forsberg Mfg Co Bridgeport Conn
John H Graham & Co Inc 105 Duane NY 8 NY
H J Harrold Tool Co Columbiana O
Mayhew Steel Prods Inc Shelburne Falls Mass
Mephisto Tool Co Inc Hudson NY
Millers Falls Co Greenfield Mass
North Bros Mfg Co Philadelphia Pa
Owatonna Tool Co Owatonna Minn
Ox-Wall Tool Co 928 Broadway New York 10 N Y
P & C Hand Forged Tool Co Portland 2 Ore
Plomb Tool Co Los Angeles 54 Calif
Rainey-Tools Grove City Pa
Reed & Prince Mfg Co Worcester 1 Mass (recessed heads)
Rockford Screw Products Co Rockford Ill
The Stanley Wks New Britain Conn (272)
L S Starrett Co Athol Mass
Tuck Mfg Co Brockton 39 Mass
Union Hdwe Co Torrington Conn
United Wire Goods Mfg Co Inc 1150 Broadway NY NY
Vichek Tool Co Cleveland O
Washburn Co Worcester Mass
Wilde Drop Forge & Tool Co Inc Kansas City Mo

SCREW DRIVERS—portable electric

Black & Decker Mfg Co Towson Md
Chicago Pneumatic Tool Co 6 E 44 NY NY
Independent Pneumatic Tool Co 600 W Jackson Chgo 6 Ill
Millers Falls Co Greenfield Mass
Milwaukee Electric Tool Corp 5360 W State St Milwaukee 8 Wis
Skilsaw Inc 5033 N Elston Av Chicago 30 Ill
Stanley Electric Tools 111 Elm New Britain Conn (272)
U S Electrical Tool Co Cincinnati 14 O

SCREW DRIVERS—ratchet

American Swiss File & Tool Co Elizabeth N J
Greenlee Bros & Co Rockford Ill
John H Graham & Co Inc 105 Duane NY 8 NY
Millers Falls Co Greenfield Mass
Ox-Wall Tool Co 928 Broadway New York 10 N Y

SCREWS—brass & bronze

American Screw Co Providence R I
Atlas Bolt & Screw Co Cleveland O
Austin & Eddy Inc P O Box 1504 Boston 4 Mass
Blake & Johnson Co Waterville Conn
Bridgeport Brass Co Bridgeport Conn
Chase Brass & Copper Co Waterbury Conn
Continental Screw Co New Bedford Mass
Curtis Screw Co Inc Buffalo N Y
Elco Tool & Screw Corp 1818 Broadway Rockford Ill
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Wm H Haskell Mfg Co Pawtucket R I
The Lamson & Sessions Co Cleveland 2 Ohio
Manufacturers Screw Prod 222 W Hubbard Chgo 10 Ill
Natl Acme Co Cleveland O
National Screw & Mfg Co Cleveland 4 O
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Pheoll Mfg Co 5700 Roosevelt Rd Cago Ill
Reed & Prince Mfg Co Worcester Mass
Rockford Screw Products Co Rockford Ill
St Louis Screw & Bolt Co St Louis Mo
Sterling Bolt Co 209 W Jackson Blvd Chgo 6 Ill
Southington Hdwe Mfg Co Southington Conn
United Screw & Bolt Corp Cleveland 2 O

SCREWS—machine

Ackerman-Johnson Co 625 W Jackson Blvd Chgo Ill
American Screw Co Providence R I
Atlas Bolt & Screw Co Cleveland O
Austin & Eddy Inc P O Box 1504 Boston 4 Mass
Blake & Johnson Co Waterville Conn
J G Braun Co 609 S Paulina Chgo 12 Ill (aluminum)
Chase Brass & Copper Co Waterbury 91 Conn

Number in parenthesis indicates page on which advertisement appears

Clark Bros Bolt Co Millidale Conn
Continental Screw Co New Bedford Mass
Economy Screw Corp 2717 Greenview Av Chgo Ill
Elco Tool & Screw Corp 1818 Broadway Rockford Ill
Gedge Bros Steel Roofing Co Anderson Ind
Genl Screw Mfg Co 1228 W Monroe Chgo Ill
Lamson & Sessions Co Cleveland O
Manufacturers Screw Prod 222 W Hubbard Chgo 10 Ill
National Lock Co Rockford Ill (293)
Natl Screw & Mfg Co Cleveland O
Pheoll Mfg Co 5700 Roosevelt Rd Chgo Ill
Reading Screw Co Norristown Pa
Reed & Prince Mfg Co Worcester Mass
Rockford Screw Prods Co Rockford Ill
Russell Burdsall & Ward Bolt & Nut Co Port Chester N Y
St Louis Screw & Bolt Co St Louis Mo
Screw Machine Specialty Co Pittsburgh 1 Pa (special only)
Sterling Bolt Co 209 W Jackson Chgo Ill
United Screw & Bolt Corp Cleveland 2 O

SCREWS—wood

American Screw Co Providence R I
Atlantic Screw Works Hartford Conn
Austin & Eddy Inc P O Box 1504 Boston 4 Mass
J G Braun Co 609 S Paulina Chgo 12 Ill (aluminum)
Chase Brass & Copper Co Waterbury 91 Conn
Continental Screw Co New Bedford Mass
Elco Tool & Screw Corp 1818 Broadway Rockford Ill
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Manufacturers Screw Prod 222 W Hubbard Chgo 10 Ill
National Lock Co Rockford Ill (293)
Natl Screw & Mfg Co Cleveland O
Chas Parker Co Meridan Conn
Pheoll Mfg Co 5700 W Roosevelt Rd Chgo 50 Ill
Reading Screw Co Norristown Pa
Reed & Prince Mfg Co Worcester Mass
Rockford Screw Prods Co Rockford Ill
Southington Hardware Mfg Co Southington Conn
Sterling Bolt Co 209 W Jackson Blvd Chgo 6 Ill
The Wellman Products Co 1444 E 49th Cleveland 3 Ohio

SCUTTLES—roof

Bilco Mfg Co New Haven 6 Conn

SET GRATES—cast iron

The Adams Co Dubuque Iowa
Chattanooga Implement & Mfg Co E Chattanooga 6 Tenn
Western Foundry Co Portland 1 Ore

SHADES—window

Aeroshade Co Waukesha Wis
Bills Venetian Blind Co 862 E 63rd St Chicago 37 Ill
Chas W Breneman Co Cincinnati O
Clopay Corp Cincinnati O
Columbia Mills Inc 225 5 Av NY NY
Columbus Coated Fabrics Corp 7th & Grant Avs Columbus 16 Ohio
E I du Pont de Nemours & Co Newburgh N Y
Higgin Prods Inc Newport Ky
Hough Shade Corp Janesville Wis
Stewart Hartshorn Co 250 Fifth Av NY 1 NY
Wm Volker & Co Kansas City Mo

SHEATHING—asbestos cement

The Philip Carey Mfg Co Lockland Cincinnati 15 Ohio (235)
R J Dorn Co New Orleans La
Johns-Manville Sales Corp 22 E 40th New York 16 N Y (224)
Keasbey & Mattison Co Ambler Pa
The Ruberoid Co 500 Fifth Av New York 18 N Y (196)

SHEATHING—asphalt rigid board

The Barrett Div Allied Chemical & Dye Corp 40 Rector New York 6 N Y (223)
The Philip Carey Mfg Co Lockland Cincinnati 15 Ohio (235)
The Flintkote Co Inc 30 Rockefeller Plaza NY NY
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
B F Nelson Mfg Co Minneapolis 13 Minn
The Ruberoid Co 500 Fifth Av New York 18 N Y (196)
Servicized Products Corp 6051 W 65th St Chicago 38 Ill

SHEATHING—fibre board

The Philip Carey Mfg Co Lockland Cincinnati 15 Ohio (235)
Fiberboard Products Inc San Francisco Calif
Insulite Division Minnesota & Ontario Paper Co Baker Arcade Bldg Minneapolis 2 Minn (194-195)
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
Lyon Conklin & Co Baltimore 30 Md
The Masonite Corp 111 W Washington Chgo 2 Ill
National Gypsum Co Buffalo 2 N Y (insulation) (198-199)
Plastergon Wallboard Co 196 Philadelphia Ave Buffalo 7 N Y
United States Gypsum Co 300 W Adams Chgo 6 Ill

SHEATHING—gypsum

The Celotex Corp 120 S LaSalle Chgo 3 Ill (226-227)
Lyon Conklin & Co Baltimore 30 Md
National Gypsum Co Buffalo 2 N Y (198-199)
Schumacher Wall Board Corp South Gate Calif
United States Gypsum Co 300 W Adams Chgo 6 Ill

SHEATHING—insulating

Armstrong Cork Co Lancaster Pa
Davis Plywood Corp Cleveland 11 Ohio
The Flintkote Co 30 Rockefeller Plaza New York 20 N Y
Hawaiian Cane Products Ltd Culver City Calif
Insulite Div Minnesota & Ontario Paper Co Minneapolis 2 Minn (194-195)
National Gypsum Co Inc Buffalo 2 N Y (198-199)
Plastergon Wall Board Co Buffalo 7 N Y
United States Gypsum Co 300 W Adams St Chicago 6 Ill
Wood Conversion Co First National Bank Bldg St Paul 1 Minn

SHEATHING—lumber

See lumber section beginning page 479

SHEETS—aluminum, steel, etc.

Allegheny Ludlum Steel Corp Oliver Bldg Pittsburgh 22 Pa (stainless steel)
Aluminum Co of America Pittsburgh Pa (136-137)
Cincinnati Sheet Metal & Roofing Co Cincinnati 2 Ohio
Reynolds Metals Co Richmond Va (231)

SHELLAC

Acme White Lead & Color Works Detroit 11 Mich
Baltimore Paint & Color Works Baltimore 23 Md
Barrett Varnish Co 1532 S 50th Court Cicero 50 Ill
Forman Ford & Co Minneapolis 1 Minn
General Paint Corp San Francisco Calif
The Glidden Co 11001 Madison Av Cleveland 2 Ohio
The O'Brien Corp South Bend 21 Ind
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Rogers Paint Products Inc Detroit 11 Mich
Valentine & Co Inc 11 E 36 New York 16 N Y

SHELVING—adjustable shelf

Knape & Vogt Mfg Co Grand Rapids 4 Mich

SHELVING—glass

W C Heller & Co Montpelier Ohio
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (151)

SHELVING—steel

All-Steel Equip Co Inc Aurora Ill
Brasco Mfg Co Harvey Ill
Cleveland Wire Spring Co 5250 Brookpark Road Cleveland 9 Ohio
Deluxe Metal Furniture Co Warren Pa
Excel Metal Cabinet Co Jamestown NY
Frick-Gallagher Mfg Co Wellston O
Harrison Steel Cabinet Co 4718 W 5th Chgo Ill
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Interlock Metal Units Inc 50 Cliff NY NY
Johnson Metal Products Co Erie Pa
Lyon Metal Prods Inc Aurora Ill
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
Wheeling Corrugating Co Wheeling W Va (357)

SHELVING—wood

Carr & Moehl Co Des Moines 9 Iowa
Creo-Dipt Co Inc North Tonawanda N Y (229)
Edward Hines Lumber Co Chicago 2 Ill (377)
Frick-Gallagher Mfg Co Wellston O
W C Heller & Co 539 N Clark St Montpelier Ohio
Huttig Sash & Door Co St Louis Mo
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
Segelke & Kohlhaus Co La Crosse Wis
Winner Industries Minneapolis 15 Minn

SHIELDS—expansion bolt

Barrett Sales Co 2612 W Barry Av Chgo Ill
Chicago Expansion Bolt Co 1338 W Concord Place Chicago 22 Ill
Diamond Expansion Bolt Co Garwood N J
Sterling Bolt Co 209 W Jackson Blvd Chgo Ill

SHINGLES—asbestos cement

Philip Carey Mfg Co Cincinnati 15 O (235)
Flintkote Co 30 Rockefeller Plaza NY NY
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
Keasbey & Mattison Co Ambler Pa
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
The Ruberoid Co 500 Fifth Av N Y 18 N Y (196)
U S Gypsum Co 300 W Adams Chgo Ill

SHINGLES—asphalt

American Asphalt Roof Corp Kansas City 3 Mo
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Bird & Son Inc East Walpole Mass
Philip Carey Mfg Co Cincinnati 15 O (235)
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Prod Corp 120 S LaSalle (215)
Dyke Bros Little Rock Ark (141)
Flintkote Co 30 Rockefeller Plaza NY NY
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
Globe Roofing Prod Co Inc Whiting Ind
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
Jones & Brown Inc Pittsburgh Pa
Lehon Co 4425 S Oakley Chgo Ill
Logan-Long Co 37 W Van Buren St Chicago 5 Ill
B F Nelson Mfg Co Minneapolis Minn
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
Tamko Asphalt Products Inc Joplin Mo
The Texas Co 135 E 42 NY NY (217)
U S Gypsum Co 300 W Adams Chgo Ill

SHINGLES—galvanized steel

Cincinnati Sheet Metal & Roofing Co Cincinnati 2 Ohio
The Edwards Mfg Co 427-477 Culvert Cincinnati Ohio
LaCrosse Steel Roofing & Corrugating Co LaCrosse Wis
Milcor Steel Co Milwaukee 4 Wis (319)
Northwest Metal Prod Inc Seattle 4 Wash
Southern States Iron Roofing Co Savannah Ga

Number in parenthesis indicates page on which advertisement appears

SHINGLES—red cedar

Acme Shingle Co Ltd 8961 Shaughnessy Vancouver B C Canada
S A Agnew Lbr Co Centralia Wash
Aloha Lbr Co Aloha Wash
Anacortes Shingle Co Anacortes Wash
Bestwood Cedar Shingle Co Ltd Barnet B C
Bloedel Stewart & Welch Ltd Vancouver B C
M T Brown Shingle Co Arlington Wash
Butler McDougall Mfg Co Ltd Vancouver B C
Canadian Western Lbr Co Ltd Fraser Mills B C
Capilano Shingle Co Ltd Vancouver B C
Central Division Co 221 N LaSalle Chgo 1 Ill
Joseph Chew Shingle Co Ltd Vancouver B C
A F Coats Lbr Co Tillamook Ore
Colonial Cedar Co 600 W Nickerson St Seattle 99 Wash (232)
Corbett Mill Co Anacortes Wash
Creo-Dipt Co Inc North Tonawanda N Y (229)
Crescent Shingle Co Kelso Wash
Eatonville Lbr Co Eatonville Wash
Fluhrer Bros Astoria Ore
Forks Shingle Co Forks Wash
Gilfillan Shingle Co Kernville Ore
Gray Lbr & Shingle Co Seattle Wash
Robert Gray Shingle Co Hoquiam Wash
Hammond Cedar Co Ltd Hammond B C
Homalko Logging Co Ltd Vancouver B C
Horne Bros Shingle Co Ltd No Vancouver B C
Horton Cedar Mfg Co Ltd Victoria B C
Wm Hulbert Mill Co Everett Wash
Hunting-Merritt Shingle Co Ltd Vancouver B C
Jamison Lbr & Shingle Co Everett Wash
Thomas Kirkpatrick Estate Vancouver B C
Lake Pleasant Shingle Co Beaver Wash
Lake Stevens Shingle Co Granite Falls Wash
Leybold-Smith Shingle Co Tacoma Wash
Long Bell Lbr Co Longview Wash
Mackie Mill Co Markham Wash
Marona Mill Co Acme Wash
McCarter Shingle Co 2418 Rock Bay Av Victoria BC Canada
McMaster Lbr & Shingle Co Marysville Wash
Robt McNair Shingle Co Ltd Vancouver B C
Miller & Sons Bellingham Wash
Newberg Shingle Co Lacomb Ore
Northwest Cedar Products Ltd Foot of Kerr Rd Vancouver B C
Pacific Timber Co Everett Wash
Perma Products Co Cleveland 4 Ohio
Peters Shingle Co Chehalis Wash
C S Phillips Shingle Co Concrete Wash
Phoenix Shingle Co Seattle Wash
Pioneer Shingle Co Anacortes Wash
Polson Lbr & Shingle Mills Hoquiam Wash
Port Dock Shingle Mill Kalama Wash
Quality Shingle Co Edmonds Wash
Rainier Mill Co Rainier Ore
Red Cedar Shingle Bureau 5508 White Bldg Seattle 1 Wash (221)
Riverside Shingle Mills Ltd New Westminster B C
Saginaw Timber Co Aberdeen Wash
Seattle Cedar Lbr Mfg Co Seattle Wash
Skalley-Setright Shingle Co Everett Wash
M R Smith Lumber & Shingle Co White Henry Stuart Bldg Seattle Wash
Stave Lake Cedar Ltd Dewdney B C
The Super Shingle Co 14th St Dock Everett Wash
Thurston-Flavelle Ltd Port Moody B C (237)
Twin Harbors Lbr Co Aberdeen Wash (12)
Washington Shingle Co Anacortes Wash
Wayland Mill Co Seattle Wash
Willapa Shingle Co Raymond Wash
Woods Creek Shingle Co Sedro Woolley Wash

SHINGLES—redwood

California Redwood Distributors Ltd 35 E Wacker Drive Chicago Ill
Union Lumber Co 620 Market San Francisco Calif

SHINGLES—stained

American Stained Shingle Co Columbus 8 Ohio
Colonial Cedar Co 600 W Nickerson St Seattle 99 Wash (232)
Creo-Dipt Co Inc North Tonawanda N Y (229)
Dyke Bros Little Rock Ark (141)
Weyerhaeuser Sales Co St Paul Minn (34-35)

SHUTTERS—window & door, wood

Anson & Gilkey Co Merrill Wis
Carr & Moehl Co Des Moines 9 Iowa
Cole Mfg Co Memphis Tenn
Curtis Companies Inc Clinton Ia
Gregg & Son Nashua N H (125)
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
Ideal Co Box 889 Waco Tex
Marquart Millwork Co Oshkosh Wis (139)
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
J R Quigley Co Gloucester City N J
Roach & Musser Co Muscatine Ia
George J Silbernagel 8 S Michigan Av Chgo 3 Ill
West Coast Screen Co Los Angeles 1 Cal

SHUTTERS—window & door, steel

Air Control Products Inc Coopersville Mich (101)

SIDING—aluminum clapboard

Metal Building Products Co Detroit Mich
Reynolds Metals Co Richmond Va (231)

SIDING—asbestos cement

Barrett Div Allied Chemical & Dye Corp 40 Rector St NY NY (223)
Philip Carey Mfg Co Cincinnati 15 O (235)
Flintkote Co 30 Rockefeller Plaza N Y N Y
Johns-Manville Corp 22 E 40th New York 16 N Y (224)
Keasbey & Mattison Co Ambler Pa
Lehon Co 4425 S Oakley Av Chgo Ill
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
U S Gypsum Co 300 W Adams Chgo 6 Ill

SIDING—asphalt, brick pattern insulating

Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Bird & Son Inc East Walpole Mass
Philip Carey Mfg Co Lockland Cincinnati 15 Ohio (235)
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Central Division Co 221 N LaSalle Chgo 1 Ill
Dyke Bros Little Rock Ark (141)
The Flintkote Co 30 Rockefeller Plaza New York N Y
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
Globe Roofing Products Co Inc Whiting Ind
Insulated Sidings Inc Culver City Calif
Johns-Manville Corp 22 E 40th New York 16 NY (224)
Jones & Brown Inc Pittsburgh 22 Pa
B F Nelson Mfg Co Minneapolis 13 Minn
Plastergon Wallboard Co Buffalo 7 N Y
Protective Products Co Minneapolis 5 Minn
U S Gypsum Co 300 W Adams Chgo 6 Ill

SIDING—asphalt, laminated rigid

Certain-teed Products Corp 120 S LaSalle Chgo 3 Ill (215)
Globe Roofing Products Co Inc Whiting Ind
Johns-Manville Corp 22 E 40th New York 16 NY (224)
Keystone Asphalt Products Co 43 E Ohio St Chicago 11 Ill
Ruberoid Co 500 5th Av New York 18 N Y (196)

SIDING—asphalt, mineral surfaced

American Asphalt Roof Corp Kansas City 3 Mo
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Bird & Son Inc East Walpole Mass
Philip Carey Mfg Co Lockland Cincinnati 15 Ohio (235)
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Products Corp 120 S LaSalle Chgo 3 Ill (215)
Dyke Bros Little Rock Ark (141)
Flintkote Co 30 Rockefeller Plaza NY NY
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
Globe Roofing Products Co Inc Whiting Ind
Insulated Sidings Inc Culver City Calif
Johns-Manville Corp 22 E 40th New York 16 NY (224)
The Lehon Co 4425 S Oakley Chgo Ill
Logan-Long Co 37 W Van Buren St Chicago 5 Ill
B F Nelson Mfg Co Minneapolis Minn
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
Tamko Asphalt Products Inc Joplin Mo
United States Gypsum Co 300 W Adams Chgo 6 Ill

SIDING—asphalt, roll brick pattern

American Asphalt Roof Corp Kansas City Mo
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Bird & Son Inc East Walpole Mass
Philip Carey Mfg Co Lockland Cincinnati 15 Ohio (235)
Certain-teed Products Corp 120 S LaSalle Chgo 3 Ill (215)
The Flintkote Co 30 Rockefeller Plaza New York N Y
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
Globe Roofing Products Co Inc Whiting Ind
Johns-Manville Corp 22 E 40th New York 16 NY (224)
The Lehon Co 4425 S Oakley Chgo Ill
Logan-Long Co 37 W Van Buren St Chicago 5 Ill
B F Nelson Mfg Co Minneapolis Minn
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
Tamko Asphalt Products Inc Joplin Mo
The Texas Co 135 E 42nd New York 17 N Y (217)
U S Gypsum Co 300 W Adams Chgo 6 Ill

SIDING—asphalt, stone pattern insulated

Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Central Division Co 221 N LaSalle Chgo 1 Ill
The Flintkote Co 30 Rockefeller Plaza New York 20 N Y
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
Globe Roofing Products Co Inc Whiting Ind
Jones & Brown Inc Pittsburgh Pa
B F Nelson Mfg Co Minneapolis Minn
Plastergon Wall Board Co Buffalo 7 N Y
Protective Products Co Minneapolis 5 Minn

SIDING—wood

(See lumber section beginning page (479)

SIDING—steel

American Rolling Mill Co Middletown O
American Steel & Wire Co Cleveland 0 (309)
Carnegie Ill Steel Corp Pittsburgh 30 Pa
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Cincinnati Sheet Metal & Roofing Co Cincinnati 2 Ohio
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
The Edwards Mfg Co 427-477 Culvert Cincinnati Ohio
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Inland Steel Co 38 S Dearborn Chgo 3 Ill
Klauer Mfg Co Dubuque Iowa
LaCrosse Steel Roofing & Corrugating Co La Crosse Wis
Milcor Steel Co 4027 W Burnham St Milwaukee 4 Wis (319)
Republic Steel Corp Republic Bldg Cleveland 1 Ohio
St Paul Corrugating Co St Paul Minn
Tennessee Coal Iron & RR Co Birmingham 2 Ala (309)
Wheeling Corrugating Co Wheeling W Va (357)

SIDING CORNERS

Barrett Div Allied Chemical & Dye Corp 40 Rector New York 6 N Y (223)
The Celotex Corp 120 S LaSalle Chgo 3 Ill (222-227)
Chicago Metallic Sash Co 2112 Ogden Av Chicago 12 Ill

Number in parenthesis indicates page on which advertisement appears

The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
The Flintkote Co 30 Rockefeller Plaza New York 20 N Y
F D Kees Mfg Co Beatrice Neb
LaCrosse Steel Roofing & Corrugating Co LaCrosse Wis
Merwin Mfg Co Erie Pa
Mid-States Steel & Wire Co Crawfordsville Ind
Nichols Wire & Steel Co Davenport Iowa (steel and aluminum) (219)
Northwest Metal Prod Inc Seattle 4 Wash
Penn Supply & Metal Corp Philadelphia 22 Pa
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
The Ruberoid Co 500 Fifth Av NY 18 NY (196)
St Paul Corrugating Co St Paul Minn
Wheeling Corrugating Co Wheeling W Va (357)

SIGNS

Erco Mfg Co 4010 W Montrose Av Chicago 41 Ill (bronze)
Reflecto Letters 411 E 101st St New York 29 N Y (reflecting lawn)

SILOS

Arrow Tank Co Inc Buffalo 14 N Y (wood)
Capitol Fence Co 735 N Water Milwaukee Wis
Craine Inc Norwich N Y
Economy Silo & Mfg Co Frederick Md
Globe Silos Unadilla N Y
Harder Silo Co Inc Cobleskill N Y
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Illinois Wire & Mfg Co Joliet Ill (314)
Independent Silo Co 752 Vandalia St Paul Minn
Johnson & Carlson 848 W Eastman Chgo 22 Ill
Kalamazoo Tank & Silo Co Kalamazoo Mich
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
Mott Lumber Co Red Creek N Y
Rowe Mfg Co Galesburg Ill
Timber Structures Inc Portland 8 Ore
Twin City Tank Silo & Specialty Co 38th Av NE & Fifth St Minneapolis, Minn
Unadilla Silo Co Inc Unadilla N Y

SINKS—cabinet

Acme Metal Products Corp Box 237 Blue Island Ill
American Central Mfg Corp Connersville Ind
Boro Wood Products Co Maspeth LI NY
Coppes Inc Nappanee Ind
Curtis Cos Inc Clinton Ia
Edison Genl Elec Appliance Co Inc 5600 W Taylor Chgo Ill
Eljer Co Ford City Pa
Elgin Stove & Oven Div of Acme Visible Records Inc Elgin Ill
Elkay Mfg Co 4703 W Arthington Chgo Ill
Excel Metal Cabinet Co Inc 101 Park Av NY NY
General Electric Co Schenectady 5 N Y
General Wood Works Council Bluffs Iowa
Gold Seal Mfg Co 1228 W Kinzie Chgo 22 Ill
Harrison Steel Cabinet Co 4718 W 5th Chgo Ill
Kitchen Maid Corp Andrews Ind
Lyon Metal Products Inc Aurora Ill
Midwest Mfg Co Galesburg Ill
Modern Steel Equip Co Geneva Ill
Morgan Co Oshkosh Wis
Paragon Utilities Corp 50 Van Dam St Brooklyn 22 N Y
The Parsons Co Detroit 3 Mich
Republic Steel Corp Cleveland 1 Ohio
Frank C Snedaker & Co Inc Philadelphia 40 Pa
Tracy Mfg Co Pittsburgh Pa
United Metal Box Co 168—7th Brooklyn N Y
Youngstown Pressed Steel Kitchens Youngstown O

SINKS—vitreous porcelain enameled

Abingdon Potteries Inc Abingdon Ill (vitreous china)
Briggs Mfg Co Detroit Mich
Crane Co 836 S Michigan Av Chgo Ill
Eljer Co Ford City Pa
The Enamel Products Co Cleveland 8 Ohio
General Ceramics Co Metuchen N J
General Porcelain Enameling & Mfg Co 2700 N Karlov Av Chgo 39 Ill
Kohler Co Kohler Wis
Paragon Utilities Corp 50 Van Dam St Brooklyn 22 N Y
Richmond Radiator Co 835 Fifth Av NY 17 NY
Standard Sanitary Mfg Co Pittsburgh Pa
Universal Sanitary Mfg Co New Castle Pa

SINKS—stainless steel

Acme Metal Products Corp Box 237 Blue Island Ill
The Edwards Mfg Co Cincinnati 2 Ohio
Elkay Mfg Co 4703 W Arthington Chgo Ill
Excel Metal Cabinet Co Jamestown NY
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Legion Stainless Sink Corp 40th Av & 21st Long Island City 1 N Y (333)
Modern Steel Equip Co Geneva Ill
Paragon Utilities Corp 50 Van Dam St Brooklyn 22 N Y
Republic Steel Corp Cleveland 1 Ohio
Richmond Engineering Co Inc Richmond Va
Frank C Snedaker & Co Inc Philadelphia 40 Pa
Tracy Mfg Co Pittsburgh Pa
Zahner Mfg Co Kansas City Mo

SKYLIGHTS

Pennsylvania Wire Glass Co Philadelphia 3 Pa

SOLDERS—liquid

Ensign Products Co Cleveland 5 Ohio
Lenk Mfg Co Newton Lower Falls Mass
So-Lo Wks Inc Loveland O

SOLDERS—paste

National Lead Co 111 Broadway New York 6 N Y
Wayne Chemical Products Co Detroit 17 Mich

SOLDER—silver

E C Atkins & Co Indianapolis 9 Ind

SOOT DESTROYER

G N Coughlan Co 29 Spring West Orange N J
Forman Ford & Co Minneapolis 1 Minn
The Knack Co East Lake Road Ithaca N Y
The Pioneer Mfg Co Cleveland 4 Ohio
Saginaw Salt Products Co Saginaw 35 Mich
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Weather Seal Co Cincinnati 2 Ohio

SPONGES

American Sponge & Chamois Co Inc 47 Ann St NY NY
Albert Bloch & Sons Inc 36 Walker New York 13 NY
Atlantic Sponge & Chamois Corp 49 Walker New York 13 N Y
E I DuPont de Nemours & Co Inc Wilmington 98 Del (cellulose)
H L Ettman Sponge Co St Louis 3 Mo
Florida Sponge & Chamois Co 42 Cliff New York 7 N Y
Greek-American Sponge Co 158 N Franklin St Chicago 6 Ill
Gulf & West Indies Co 141 Water NY 5 NY
Industrial Chemical Laboratories Ltd Omaha 2 Neb
Dan Malloy Co Philadelphia 6 Pa
Nassau Sponge Co 124 W Kinzie Chgo 10 Ill
Pittsburgh Plate Glass Co Pittsburgh 19 Pa (169)
James H Rhodes & Co 157 W Hubbard St Chicago 10 Ill
Robinson Sponge Co 1805 Atlantic Av Brooklyn N Y
Schroeder & Tremayne Inc 1711 Delmar Blvd St Louis 3 Mo
Tamms Silica Co 228 N LaSalle Chgo 1 Ill (rubber)

SPRAY—stock

Agkem Inc Quincy Ill
Barrett Div Allied Chem & Dye Corp 40 Rector St NY NY (223)
Boyle-Midway Inc Jersey City 2 N J (182)
Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
Colorado Paint Co 3551 Blake Denver 5 Colo
Pennsylvania Salt Mfg Co Philadelphia Pa
Puritan Chemical Co Atlanta 3 Ga
Sherwin-Williams Co Cleveland O (183)
D B Smith & Co Inc Utica 2 NY (409)
Standard Oil Co of Ind 910 S Michigan Av Chgo Ill

SPRAYERS—garden, lawn

Lowell Mfg Co Dept 63 589 E Illinois St Chicago 11 Ill (321)
H D Hudson Mfg Co 589 E Illinois St Chicago 11 Ill (311)

SPRINGS—door

Accurate Spring Mfg Co 3811 W Lake Chgo Ill
American Steel & Wire Co Cleveland O (309)
Bommer Spring Hinge Co 263 Classon Av Brooklyn N Y
Champion Hdwe Co Geneva O
Chicago Spring Hinge Co 1500 Carroll Av Chgo Ill
Cleveland Lock Wks Div Consolidated Iron Steel Mfg Co 1283 E 53rd Cleveland 14 Ohio (145)
Cleveland Wire Spring Co 5250 Brookpark Road Cleveland 9 Ohio
Colorado Fuel & Iron Corp Denver 1 Colo
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Frantz Mfg Co Sterling Ill (298)
M D Hubbard Spring Co Pontiac Mich
Lawrence Bros Sterling Ill
National Mfg Co Sterling Ill
Russell & Erwin Div The American Hardware Corp New Britain Conn
Sargent & Co New Haven Conn (295)
The Stanley Wks New Britain Conn (272)
Wagner Mfg Co Cedar Falls Iowa
Wright Products Co St Paul Park Minn

SQUARES—carpenters, steel, "T"

Brown & Sharpe Mfg Co Providence RI
Eugene Dietzgen Co 2425 N Sheffield Av Chgo Ill
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Keuffel & Esser Co Hoboken N J
McGrath-St Paul Co 242 E Fifth St St Paul 1 Minn (aluminum rafter)
Peck Stow & Wilcox Co Southington Conn
Sargent & Co New Haven Conn (295)
Sheffield Steel Corp Kansas City Mo
Southington Hardware Mfg Co Southington Conn
Stanley Tools New Britain Conn (272)
L S Starrett Co Athol Mass
Union Tool Co Orange Mass
The Wellman Products Co Cleveland 3 Ohio

SQUARES—glass cutters'

Lufkin Rule Co Saginaw Mich
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (151)

SQUEEGEES

De Hymel Mfg Co Ltd Pasadena Cal
A F Dormeyer Mfg Co 4316 N Kilpatrick Av Chgo Ill
Illinois Duster & Brush Co 1926 Webster Av Chgo 14 Ill
Florida Sponge & Chamois Co 42 Cliff New York 7 N Y
W E Kautenberg Co Freeport Ill
Mechanical Supplies Co 6702 Perry Av Chgo Ill
Newark Ladder & Bracket Sales Co Inc Newark 3 N J
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (151)

STACKERS—automatic lumber

American Mfg Co Inc 2119 Pacific Av Tacoma 2 Wash (404)
The Filer & Stowell Co Milwaukee 7 Wis
Hyster Co Portland 9 Ore & Peoria 1 Ill
Silent Hoist & Crane Co 860 63rd Brooklyn NY (402)

STAIN—concrete

Baltimore Paint & Color Works Baltimore 23 Md
Globe Paint Wks Inc 202-208 Market Williamsport 5 Pa
A C Horn Co 43-36 Tenth Long Island City N Y
J Lee Smith & Co Inc 19 Jacob NY NY
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
The Sullivan Co P O Box 2606 Memphis 2 Tenn

Number in parenthesis indicates page on which advertisement appears

Tamms-Silica Co 228 N La Salle Chgo 1 Ill
20th Century Paint & Varnish Co 30 Roebling Booklyn 11 N Y
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass
C K Williams & Co Easton Pa

STAIN—shingle, wood

Acme White Lead & Color Works Detroit 11 Mich
Alabastine Paint Products Grand Rapids 9 Mich
American Marietta Co 43 E Ohio Chgo 11 Ill
American Stained Shingle Co Columbus 8 O
Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Atlantic Paint & Varnish Works Milmington N C
Barrett Div Allied Chem & Dye Corp 40 Rector St NY NY (223)
Berry Bros Inc 211 Leib St Detroit 7 Mich
Boston Varnish Co Boston 49 Mass (178)
Breinig Brothers Inc 1st & Harrison Hoboken N J
Briggs Maroney Co Inc Everett 49 Mass
Samuel Cabot Inc 141 Milk St Boston 9 Mass
Calbar Paint & Varnish Co Philadelphia 25 Pa
Carbolineum Wood Preserving Co 528 W Highland Milwaukee 3 Wis
Colonial Cedar Co 600 W Nickerson St Seattle 99 Wash (232)
Creo-Dipt Co Inc North Tonawanda NY (229)
E I duPont de Nemours & Co Inc Wilmington 98 Del
Elliott Paint & Varnish Co 4523 W Fifth Av Chicago 24 Ill
Felton Sibley & Co Inc 136 N 4th Philadelphia 6 Pa
Forman Ford & Co Minneapolis 1 Minn
The Foy Paint Co Inc Cincinnati 12 Ohio
Franklin Research Co Philadelphia 31 Pa
W P Fuller & Co 301 Mission San Fran 19 Cal
Glidden Co Cleveland Ohio
Harrison Paint & Varnish Co Canton O
Keystone Varnish Co 71 Otsego St Brooklyn 31 N Y
W W Lawrence & Co Pittsburgh 19 Pa
Lowe Bros Co Dayton O (173)
Robert McNair Shingle Co Ltd Vancouver B C Canada
The Martin-Senour Co 2520 S Quarry Chgo 8 Ill
Minnesota Linseed Oil Paint Co Minneapolis 15 Minn
Murphy Paint Div Interchemical Corp 224 McWhorter Newark 1 N J
The O'Brien Corp South Bend 21 Ind
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Peaslee-Gaulbert Paint & Varnish Co Louisville Ky
Perma Products Co Cleveland 4 Ohio
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Republic Creosoting Co Indianapolis 4 Ind
Reilly Tar & Chemical Corp Indianapolis 4 Ind
Sargent-Gerke Co Indianapolis 6 Ind
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Sherwin-Williams Co Cleveland O (183)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass
The Sullivan Co Memphis 2 Tenn
Tennessee Eastman Corp Kingsport Tenn
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
Vita-Var Corp Newark NJ (508)
Wadsworth Howland & Co 141 Federal Boston Mass
Wood Preserver Co St Louis Mo
Wood Treating Chemicals Co St Louis Mo

STAIRS—disappearing

Bessler Disappearing Stairway Co Akron O
Carr Adams & Collier Co Dubuque Iowa (131)
The Marschke Co 551 University Av St Paul 3 Minn
Newark Ladder & Bracket Sales Co Inc Newark 3 N J

STAIRWAYS—steel

Decatur Iron & Steel Co Decatur Ala
J W Fiske Iron Works 78 Park Place New York 7 N Y
Harrison Steel Cabinet Co 4718 W 5th Chgo Ill
Home-Oln Corp 9 S Clinton St Chicago 6 Ill (372)
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Logan Co Inc Louisville 6 Ky
Metal Crafters Div Castone Products Co Cedar Rapids Iowa (305)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Republic Steel Corp Cleveland 1 Ohio
St Paul Foundry & Mfg Co St Paul 3 Minn
F P Smith Wire & Iron Works Inc 2346 N Clybourn Av Chicago 14 Ill

STAIRWORK—wood

Carr Adams & Collier Co Dubuque Iowa (131)
Cole Mfg Co Box 2657 Memphis 2 Tenn
Corbett Cabinet Mfg Co St Marys Pa
Farley & Loetscher Mfg Co Dubuque Iowa
Kane Mfg Corp Kane Penna
M & M Woodworking Co Portland Ore
Morgan Co Oshkosh Wis
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Radford & Sanders Inc Baltimore Md
The Radford Co Oshkosh Wis
Frank C Snedaker & Co Inc Philadelphia 40 Pa
Weyerhaeuser Sales Co St Paul Minn (34-35)

STAPLERS

Acme Staple Co Camden N J
Bostitch Inc East Greenwich R I
Brower Mfg Co Quincy Ill
Burgess Fastening Co Cleveland 13 O
Fastener Corp 860 Fletcher Chgo 14 Ill
Markwell Mfg Co Inc 200 Hudson NY 13 NY (304)
Saranac Machine Co Benton Harbor Mich
Star Paper Fastener Co Norwalk Conn (254)

STAPLES—wire

Acme Staple Co Camden N J
American Steel & Wire Co Cleveland O (309)
Atlantic Steel Co Atlanta Ga
Atlas Tack Corp Fairhaven Mass
Bethlehem Steel Co Bethlehem Pa
Bostitch Inc East Greenwich R I
Brower Mfg Co Quincy Ill
Burgess Fastening Co Cleveland 13 O
Colorado Fuel & Iron Corp Denver Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Copperweld Steel Co Glasport Pa
Eagle Electric Mfg Co Inc 23-10 Bridge Plaza S Long Island City 1 N Y
Fastener Corp 860 Fletcher Chgo 14 Ill
Frantz Mfg Co Sterling Ill (298)
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Independent Nail & Packing Co Bridgewater Mass
Jones & Laughlin Steel Corp Pittsburgh Pa
Keystone Steel & Wire Co Peoria Ill
Markwell Mfg Co Inc 200 Hudson NY NY (304)
Mid-States Steel & Wire Co Crawfordsville Ind
Natl Screw & Mfg Co Cleveland O
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh Pa
Republic Steel Corp Cleveland 1 Ohio
Sheffield Steel Corp Kansas City Mo
Shelton Tack Co 103 Canal Shelton Conn
E H Titchener & Co Binghamton N Y
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y
Youngstown Steel Prods Co Youngstown O (102)

STEEL FRAMING

Brasco Mfg Co Harvey Ill
General Engineering Corp Charlotte Mich
Great Lakes Steel Corp Stran Steel Div Detroit 26 Mich
Jones & Laughlin Steel Corp Pittsburgh Pa
Laclede Steel Co St Louis 1 Mo
St Paul Foundry & Mfg Co St Paul 3 Minn
Wheeling Corrugating Co Wheeling W Va (357)

STEEL WOOL

American Steel Wool Mfg Co Inc 4224 Orchard Long Island City NY
Brillo Mfg Co 60 John St Brooklyn N Y Chgo Ill
Eagle Steel Wool Co 6201 W 65 Chgo Ill
International Steel Wool Corp Springfield Ohio
James H Rhodes & Co 157 W Hubbard St Chgo Ill
Williams Co London O

STOKERS—coal, automatic

American Engineering Co Philadelphia 25 Pa (underfeed spreader)
Brownell Co Dayton 1 O
Chrysler Corp Airtemp Div Dayton O
Combustion Engineering Co Inc 200 Madison Av New York 16 N Y
Econ-O-Col Stoker Div of Cotta Transmission Co Rockford Ill
Excelsior Stove & Mfg Co Quincy Ill
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Iron Fireman Co 3170 W 106 Cleveland 11 Ohio
Kol-Master Corp Oregon Ill
A O Smith Corp 3533 N 27th St Milwaukee Wis
Steel Products Engineering Co Combustioneer Div Springfield Ohio
Stokol Stoker Co Inc Indianapolis 7 Ind
U S Machine Corp Lebanon Ind
Westinghouse Electric Corp 306 Fourth Av Pittsburgh 30 Pa (331)

STORE FRONTS

Brasco Mfg Co Harvey Ill
Chase Brass & Copper Co Waterbury 91 Conn
General Porcelain Enameling & Mfg Co 2700 N Karlov Av Chgo 39 Ill
The Kawneer Co Niles Mich
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Pennsylvania Wire Glass Co Philadelphia 3 Pa
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (151)

STOVES—brooder

Buckeye Incubator Co Springfield O
Excelsior Stove & Mfg Co Quincy Ill
Harder Silo Co Cobleskill N Y
H D Hudson Mfg Co 589 E Illinois Chgo 11 Ill (311)
Lyon Rural Electric Co San Diego 12 Cal
Queen Stove Wks Inc Albert Lea Minn
Simplex Brooder Stove Co Grand Rapids Mich

STOVES—camp, gasoline, pressure

American Gas Mach Co Inc Albert Lea Minn
Cleveland Lock Works Cleveland 14 O (145)
The Coleman Co Inc Wichita 1 Kan
Excelsior Stove & Mfg Co Quincy Ill
Hamlin Metal Prod Co Inc Akron O
Majestic Mfg Co St Louis Mo (105)
Prentiss Waber Prod Co Wisconsin Rapids Wis
Quad Stove Mfg Co Columbus O
Sandvik Saw & Tool Corp 47 Warren New York 7 N Y (kerosene)
Turner Brass Wks Sycamore Ill
Union Steel Prod Co Albion Mich

STOVES—coal

Locke Stove Co Kansas City 6 Mo

STOVES—oil

Excelsior Stove & Mfg Co Quincy Ill
Florence Stove Co Gardner Mass
A J Lindemann & Hoverson Co 601 W Cleveland Av Milwaukee 7 Wis
Prentiss Wabers Products Co Wisconsin Rapids Wis

STRAIGHT EDGES

E C Atkins & Co Indianapolis 9 Ind
Brown & Sharpe Mfg Co Providence R I
Henry Disston & Sons Inc Tacony Philadelphia 35 Pa
Keuffel & Esser Co Hoboken N J
Peck Stow & Wilcox Co Southington Conn
Red Devil Tools Irvington 11 N J (288)
Ridgely Trimmer Co Springfield O
L S Starrett Co Athol Mass
Warner Mfg Co 801 16th Av SE Minneapolis 14 Minn

Number in parenthesis indicates page on which advertisement appears

STRAINER—down pipe

Brown & Sharpe Mfg Co 235 Promenade St Providence 1 R I
La Crosse Steel Roofing & Corrugating Co La Crosse Wis
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
U S Cistern Filter Mfg Co Bloomington Ill

STRAP APPLYING EQUIPMENT

Acme Steel Co 2840 S Archer Chgo 8 Ill
Brainard Steel Corp Warren Ohio
Signode Steel Strapping Co 2635 N Western Av Chgo Ill

STRAPPING—steel

Acme Steel Co 2840 S Archer Chgo 8 Ill
Brainard Steel Corp Warren Ohio
Gerrard Steel Strapping Co 2915 W 47th Chgo 32 Ill
The Paine Co 2951 Carroll Av Chgo 12 Ill
John A Roebling's Sons Co Trenton N J
Signode Steel Strapping Co 2635 N Western Av Chgo Ill
The Stanley Wks New Britain Conn (272)

STUCCO

E D Coddington Mfg Co Milwaukee 9 Wis
Colorcrete Industries Inc Holland Mich
Louisville Cement Co Inc 315 Guthrie Louisville 2 Ky
Penn Crete Products Co Philadelphia 32 Pa
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
U S Gypsum Co 300 W Adams Chgo Ill
Woodville Lime Prod Co Toledo O

STUMP PULLERS—tractor & horse drawn

Dorsey Trailers Elba Ala (403)
Hyster Co Portland 8 Ore & Peoria 1 Ill
Stimmel Winch Co 37-24 33rd St Long Island City 1 N Y (tractor & truck)

SUNDIALS—cast bronze

Adams Co Dubuque Ia
Colonial Brass Co Middleboro Mass
J W Fiske Iron Works 78 Park Place New York 7 N Y
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Newman Bros Inc Cincinnati 3 Ohio
Turner Brass Wks Sycamore Ill

SURVEYS—timber, logging

Thomas F Grayson Prescott 5 Ark
The James Lacey Company 231 S La Salle St Chgo 4 Ill
Lemieux Bros Inc New Orleans 12 La
H M Spain & Co Commerce Title Bldg Memphis Tenn

SWINGTABLES—lumber

Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)

TABLE TOPS—drafting

Eugene Dietzgen 2425 N Sheffield Chgo Ill
Keuffel & Esser Co Hoboken N J
Frederick Post Co 155 E Ohio Chgo Ill
H E Smith Co Adrian Mich

TABLE TOPS—porcelain enameled

Barclay Mfg Co 385 Gerard Av Bronx NY
Enamel Prod Co Cleveland O
General Porcelain Enameling & Mfg Co 2700 N Karlov Av Chgo 39 Ill
Tennessee Enamel Mfg Co Nashville Tenn
Vitreous Steel Prod Co Cleveland O

TABLES—display

Brewer-Titchener Corp Cortland N Y
Equipto Div of Aurora Equipment Co Aurora Ill
W C Heller & Co 539 N Clark St Montpelier Ohio
General Wood Works Council Bluffs Iowa
Grand Rapids Store Equipment Co Grand Rapids 2 Mich
Lyon Metal Prod Inc Aurora Ill
Reflector Hdwe Corp Western Av & 22nd Pl Chgo Ill
Republic Steel Corp Berger Mfg Div Canton 5 Ohio

TABLES—kitchen

Austell Cabinet Co Austell Ga
General Wood Works Council Bluffs Iowa
Gold Seal Mfg Co 1228 W Kinzie Chgo 22 Ill
Ingram-Richardson Mfg Co Beaver Falls Pa
I-X-L Furniture Co Inc Goshen Ind
Mutschler Bros Co Nappanee Ind
G I Sellers & Sons Elwood Ind

TABLETS

Erco Mfg Co 4010 W Montrose Av Chicago 41 Ill (bronze)
Newman Bros Inc Cincinnati 3 Ohio (bronze, aluminum, stainless steel)

TACKERS—automatic

Acme Staple Co Camden N J
Bostitch Inc East Greenwich R I
Burgess Fastening Co Cleveland 13 O
Fastener Corp 860 Fletcher Chgo 14 Ill
Fiwale Equipment Mfg Co 165 Church New York 7 N Y
A L Hansen Mfg Co 5037 N Ravenswood Chgo Ill
Markwell Mfg Co Inc 200 Hudson NY 13 NY (304)
Star Paper Fastener Co Norwalk Conn (254)

TACKERS—hammer

Bostitch Inc East Greenwich R I
Burgess Fastening Co Cleveland 13 O
Fairmont Tool & Forging Co 10611 Quincy Av Cleveland Ohio
Fastener Corp 860 Fletcher Chgo 14 Ill
Markwell Mfg Co Inc 200 Hudson St New York 13 N Y (304)
C S Osborne & Co Harrison N J
The Stanley Wks New Britain Conn (272)

TACKS

American Steel & Wire Co Cleveland O (309)
Burgess Fastening Co Cleveland 13 O
Chase Brass & Copper Co Waterbury Conn
Clendenin Bros Baltimore Md
Colorado Fuel & Iron Corp Denver Colo
Columbia Steel Co Russ Bldg San Fran (309)
L F Grammes & Sons Inc 396 Union Allentown Pa
Hillwood Mfg Co Cleveland O
Holland Mfg Co Baltimore Md
National Screw & Mfg Co Cleveland O
Shelton Tack Co 103 Canal Shelton Conn
Snell-Jones Tack Corp Brockton Mass
Tennessee Coal Iron & R R Co Birmingham 2 Ala (309)

TACKS—thumb

Atlas Tack Corp Fairhaven Mass
Hampden Mfg Co Plainfield N J
Hillwood Mfg Co Cleveland O
Holland Mfg Co Baltimore Md
Robt E Miller Inc 35 Pearl NY NY
Moore Push-Pin Co Phil Pa
Turner & Seymour Mfg Co Torrington Conn
Waterbury Tack Co Inc 200 5 Av NY NY

TANKS—septic, clay

Cannelton Sewer Pipe Co Cannelton Ind
S R Dee Bloomingdale Ind
Denver Sewer Pipe & Clay Co Denver 1 Colo
W S Dickey Clay Mfg Co Kan City Mo
Evans Pipe Co Uhrichsville Ohio
Laclede-Christy Clay Products Co St Louis Mo
Robinson Clay Prod Co Akron O
Sealcon Products Inc 927 Second Av S Minneapolis 2 Minn
Streator Drain Tile Co Streator Ill
What Cheer Clay Products Co What Cheer Iowa

TANKS—septic, concrete

Graystone Concrete Prod Co 134 Nickerson St Seattle 9 Wash

TANKS—septic, steel

American Steel Works Kansas City 8 Mo
Beall Pipe & Tank Corp Portland Ore
W E Caldwell Co Louisville 8 Ky
Dempster Mill Mfg Co Beatrice Neb
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Eastern Connecticut Welding Corp New London Conn
Ingalls Iron Wks Co Birmingham Ala
Richmond Engineering Co Richmond Va
Stover Steel Tank & Mfg Co Freeport Ill

TANKS—septic, wood

Arrow Tank Co Inc Buffalo 14 N Y
W E Caldwell Co Louisville 8 Ky
Fleishel Lbr Co 4235 Duncan Av St Louis 10 Mo (57)
Johnson & Carlson 848 W Eastman Chgo Ill
Mutual Fir Column Co Tacoma Wash
Pacific Lbr Co San Francisco Cal
Uniflow Mfg Co Erie Pa
U S-Challenge Co Batavia Ill
Weyerhaeuser Sales Co St Paul Minn (34-35)

TANKS—steel stock & storage

American Steel Works Kansas City 8 Mo
Beall Pipe & Tank Corp Portland Ore
Breyer Bros Whiting & Co Waupun Wis
W E Caldwell Co Louisville 8 Ky
Connecticut Blower Co P O Box 884 Hartford 1 Conn
Decatur Iron & Steel Co Decatur Ala
Dempster Mill Mfg Co Beatrice Neb
Economy Silo & Mfg Co Frederick Md
Farwell Ozmun Kirk & Co St Paul 1 Minn
Flint & Walling Mfg Co Kendallville Ind
Gedge Bros Steel Roofing Co Anderson Ind
Houston Blow Pipe & Sht Met Wks Houston Tex (400-401)
H D Hudson Mfg Co 589 E Illinois Chgo Ill (311)
Kewanee Boiler Corp Kewanee Ill
Kirk & Blum Mfg Co Cincinnati Ohio
Midwest Steel Prod Co Kan City Mo
R Munroe & Sons Mfg Corp Pittsburgh 22 Pa
Oakes Mfg Co Tipton Ind
Richmond Engineering Co Inc Richmond Va
Stover Steel Tank & Mfg Co Freeport Ill
U S-Challenge Co Batavia Ill

TANKS—wood stock & storage

Arrow Tank Co Inc Buffalo 14 N Y
Atlantic Tank Corp Bergen N J
Atlas Tank Mfg Co San Francisco Cal
Baltimore Cooperage Tank & Tower Co Baltimore Md
Breyer Bros Whiting & Co Waupun Wis
Butler Mfg Co Kan City Mo
W E Caldwell Co Inc Louisville Ky
California Redwood Distributors Ltd 35 E Wacker Dr Chgo Ill
Dempster Mill Mfg Co Beatrice Neb
Economy Silo & Mfg Co Frederick Md
Fleishel Lbr Co 4235 Duncan Av St Louis 10 Mo (57)
Flint & Walling Mfg Co Kendallville Ind
Johnson & Carlson 848 W Eastman Chgo 22 Ill
M & M Wood Working Co Resnprest Div 2301 N Columbia Portland 3 Ore
New England Tank & Tower Co Everett Mass
Pacific Wood Tank Corp San Francisco 5 Calif
E F Schlichter Co Inc 16 S Broad Philadelphia 2 Pa
Union Lumber Co San Francisco Cal
U S-Challenge Co Batavia Ill

TAPE—friction

Continental Rubber Wks Co Erie Pa
Firestone Tire & Rubber Co Akron O (276)
The B F Goodrich Co Akron Ohio
Goodyear Tire & Rubber Akron O
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Okonite Co Passaic N J
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Passaic Rubber Co Clifton N J
Plymouth Rubber Co Inc Canton Mass
Sullivan & Sons Mfg Co Phil Pa

Number in parenthesis indicates page on which advertisement appears

Superior Insulating Tape Co St Louis Mo
Union Rubber & Asbestos Co Trenton N J
United States Rubber Co 1230 6th Av New York 20 N Y
Van Cleef Bros 7800 Woodlawn Av Chgo Ill

TAPE—gummed

Atlantic Gummed Paper Corp 1 Main Brooklyn 1 N Y
Economy Novelty & Printing Co 225 W 39th NY 18 NY
J E Fricke Co Phil Pa
Gummed Prod Co Troy O
Nashua Gummed & Coated Paper Co Nashua N H
Wortendyke Mfg Co Richmond Va

TAPES—measuring

Frank R Buck & Co 2133 W Touhy Av Chicago 45 Ill (409)
Chicago Steel Tape Co 7956 S Chgo Av Chgo 17 Ill
Eugene Dietzgen Co 2425 N Sheffield Chgo Ill
John H Graham & Co Inc 105 Duane New York 8 N Y
Keuffel & Esser Co Hoboken N J
Lufkin Rule Co Saginaw Mich
Master Rule Mfg Co 817 E 136 NY NY
L S Starrett Co Athol Mass
Warren-Knight Co Philadelphia 7 Pa
Waterbury Lock & Specialty Co Milford Conn

TARPAULINS

Bemis Bro Bag Co St Louis 2 Mo
Canvas Products Co 1240 So 7th St St Louis 4 Mo
Clifton Mfg Co Waco Texas
Couch Bros Mfg Co East Point Ga
C R Daniels Inc 44 West NY NY
Fulton Bag & Cotton Mills Atlanta 1 Ga
The B F Goodrich Co Akron Ohio
Hettrick Mfg Co Toledo 1 Ohio
J W Johnson Co 1237 N Honore Chgo Ill
New York Drop Cloth Mfg Co Inc Borden Av & 21 Long Island City N Y
Smith-Hunzinger Co 431 N Wells Chgo 10 Ill
Standard Awning Co Hartford Conn
Wm W Stanley Co Inc 401 Broadway NY NY
Tucker Duck & Rubber Co Ft Smith Ark
U S Tent & Awning Co 2315 W Huron Chgo Ill
H Wenzel Tent & Duck Co St Louis Mo
Werner Canvas Prod Co 607 Bergen Brooklyn N Y

TERMITE CONTROL

Abesto Mfg Corp Michigan City Ind
American Lumber & Treating Co 332 S Michigan Av Chicago 4 Ill (65)
E L Bruce Memphis Tenn (207)
Carbolineum Wood Preserving Co 528 W Highland Milwaukee 3 Wis
Chapman Chemical Co 333 N Michigan Av Dept A Chicago 1 Ill (66)
Cre-o-Tox Chemical Co Memphis Tenn (79)
E I DuPont de Nemours & Co Inc Wilmington Del
Elroy Naval Stores Co Inc Vidalia Ga
Forman Ford & Co Minneapolis 1 Minn
Geo C Gordon Chemical Co Kansas City 7 Mo
Hill Termite Control Systems Memphis 1 Tenn
Paisley Products Inc 1770 Canalport Av Chicago 16 Ill
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Phelan-Faust Paint Mfg Co St Louis 11 Mo
Protection Products Mfg Co Kalamazoo Mich (68)
Protexol Corp 40 Market St Kenilworth N J (18)
Quigley Co Inc 527 Fifth Av New York 17 N Y
Republic Creosoting Co Indianapolis 4 Ind
Rockford Paint Mfg Co Rockford Ill
The Sisalkraft Co 205 W Wacker Drive Chicago 6 Ill (237)
Steelcote Mfg Co St Louis 3 Mo
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Tennessee Eastman Corp Kingsport Tenn
Timber Engineering Co 1319 Eighteenth N W Washington 6 D C
Vaccinol Sales Co Little Rock Ark
Weather Seal Co Cincinnati 2 Ohio
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass
Wood Treating Chemicals Co St Louis Mo

TERNE PLATES

American Rolling Mill Co Middletown O
Bethlehem Steel Co Bethlehem Pa
Inland Steel Co 38 S Dearborn Chgo 3 Ill
McKeesport Tin Plate Corp McKeesport Pa
Milcor Steel Co Milwaukee 4 Wis (319)
Northwest Metal Prod Inc Seattle 4 Wash
Wheeling Corrugating Co Wheeling W Va (357)
Wheeling Steel Corp Wheeling W Va (357)
Youngstown Sheet & Tube Youngstown O

THINNER—paint

Alabastine Paint Products Grand Rapids 9 Mich
The Alcatraz Co Inc Richmond 20 Va
American Marietta Co 43 E Ohio Chgo 11 Ill
Briggs Maroney Co Inc Everett 49 Mass
Chi-Namel Paint & Varnish Co Minneapolis Minn
Devoe & Raynolds Co Inc 787 1st Av NY 17 NY
Elliott Paint & Varnish Co 4523 W Fifth Av Chicago 24 Ill
Elroy Naval Stores Co Inc Vidalia Ga
Forman Ford & Co Minneapolis 1 Minn
Glidden Co Cleveland O
Geo C Gordon Chemical Co Kansas City Mo
A C Horn Co 43-36 Tenth Long Island City N Y
Inter-State Oil Co Kansas City 3 Kan
W W Lawrence & Co 1124 W Carson Pittsburgh 19 Pa
The Neville Co Neville Island Pittsburgh 25 Pa
Peaslee-Gaulbert Paint & Varnish Co Louisville Ky
Pittsburgh Plate Glass Co Pittsburgh Pa (169)
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Quigley Co Inc 527 Fifth Av New York 17 N Y
Reliable Paste Co 3560 Shields Av Chicago Ill
Rockford Paint Mfg Co Rockford Ill
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Sheboygan Paint Co Sheboygan Wis
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
Wadsworth Howland & Co 141 Federal Boston Mass
The Wilbur & Williams Co Boston 16 Mass

THRESHOLDS—metal

Adams Co Dubuque Ia
Allmetal Weatherstrip Co 229 W Ohio Chgo Ill
American Brass Co Waterbury Conn
American Mason Safety Tread Co Lowell Mass
Ames Metal Moulding Co Inc 228 E 144th St New York 51 N Y
Columbia Industries 19th Av & 36th St Long Island City 5 N Y (507)
W J Dennis & Co 1732 N Kolmar Chgo Ill
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Erco Mfg Co 4010 W Montrose Av Chicago 41 Ill
H S Getty & Co Inc Phil Pa
Macklanburg-Duncan Co Oklahoma City Okla (297)
Master Metal Strip Service Inc 1720 N Kilbourn Av Chicago 39 Ill
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Monarch Metal Weatherstrip Corp St Louis 14 Mo
Newman Bros Inc Cincinnati 3 Ohio
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
Revere Copper & Brass Co 2200 N Natchez Chgo Ill
Oscar Rixson Co 4450 W Carroll Chgo Ill
S & W Moulding Co Columbus 6 Ohio
Safe Tread Co Inc 30 Vesey NY 7 NY
St Paul Foundry & Mfg Co St Paul 3 Minn
Samson Products Co 4238 N Leavitt Av Chgo 18 Ill
The Security Co Detroit 3 Mich (111)
F P Smith Wire & Iron Works Inc 2346 N Clybourn Av Chicago 14 Ill
Turner Brass Wks Sycamore Ill
Wooster Prod Inc Wooster O
Youngstown Manufacturing Inc 66 S Prospect Youngstown 6 Ohio (102)

THRESHOLDS—wood

SEE LUMBER CLASSIFICATION BEGINNING PAGE 479

TIES—bale

American Steel & Wire Co Cleveland 0 (309)
Bethlehem Steel Co Bethlehem Pa
Colorado Fuel & Iron Corp Denver 1 Colo
Columbia Steel Co Russ Bld San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Keystone Steel & Wire Co Peoria Ill
Mid-States Steel & Wire Co Crawfordsville Ind
Nichols Wire & Steel Co Davenport Ia (219)
Northwestern Steel & Wire Co Sterling Ill
Republic Steel Corp Cleveland 1 Ohio
Sheffield Steel Corp Kansas City Mo
Shelby Wire Co Shelby O
The Stanley Wks New Britain Conn (272)
Tennessee Coal Iron & RR Co Birmingham Ala (309)
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 N Y

TIES—concrete form

Jeschke Wire & Specialty Co Crawfordsville Ind
M & M Wire Clamp Co 983-17th Av S E Minneapolis 14 Minn
Richmond Screw Anchor Co Inc 816 Liberty Brooklyn 8 N Y
Star Expansion Bolt Co 147 Cedar St New York 6 N Y
Williams Form Engineering Corp Grand Rapids Mich
Williams Wallace Co San Francisco Cal

TIES—wall

Adams Co Dubuque Ia
American Sheet Metal Wks New Orleans La
Beatrice Steel Tank Mfg Co Beatrice Neb
Chase Brass & Copper Co Waterbury Conn
Consolidated Expanded Metal Co Wheeling W Va
Copperweld Steel Co Glassport Pa
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Jeschke Wire & Specialty Co Crawfordsville Ind
Kewanee Mfg Co Kewanee Ill
Klauer Mfg Co Dubuque Ia
Merwin Mfg Co Erie Pa
Milcor Steel Co 4027 W Burnham St Milwaukee 4 Wis (319)
National Gypsum Co 325 Delaware Av Buffalo 2 N Y (198-199)
New Orleans Roofing & Metal Co New Orleans La
Nichols Wire & Steel Co Davenport Ia (219)
Northwest Metal Prod Inc Seattle 4 Wash
Reeves Steel & Mfg Co Dover Ohio
Republic Steel Corp Berger Mfg Div Canton 5 Ohio
Richmond Screw Anchor Co Inc 816 Liberty Av Brooklyn 8 N Y
Sealcon Products Inc Minneapolis 2 Minn
Southwest Hdwe Mfg Co Ft Smith Ark
Union Steel Prod Co Albion Mich
United States Gypsum Co 300 W Adams St Chicago 6 Ill

TILE—board

Barclay Mfg Co 385 Gerard Av Bronx NY
Celotex Corp 120 S LaSalle Chicago Ill (226-227)
Davis Plywood Corp Cleveland 11 Ohio
Duratile Corp Mishawaka Ind (metal)
Fir-Tex Porter Bldg Portland 4 Ore
The Flintkote Co 30 Rockefeller Plaza New York 20 N Y
Gibbs Boardtile Corp 636D N Aberdeen Chgo Ill
Insulite Division Minnesota & Ontario Paper Co Baker Arcade Bldg Minneapolis 2 Minn (194-195)
Johns-Manville Corp 22 E 40th NY 16 NY (224)
Marsh Wall Prod Inc Dover O (192)

Number in parenthesis indicates page on which advertisement appears

National Gypsum Co 325 Delaware Av Buffalo 2 N Y (198-199)
National Tileboard Co 1314 Blondel Av Bronx 61 N Y
Plastergon Wallboard Co 196 Philadelphia Av Buffalo 7 NY
Prestile Mfg Co 2860 Lincoln Av Chgo 13 Ill (200)
Superior Plastic Co 426 N Oakley Chicago Ill (plastic)
Tylac Co Monticello Ill
U S Gypsum Co 300 W Adams Chgo 6 Ill
Upson Co Lockport N Y (190)
Wood Conversion Co First National Bank Bldg St Paul 1 Minn

TILE—clay, drain

Acme Brick Co Fort Worth 2 Tex
Adel Clay Products Co Des Moines Iowa
Columbia Pipe Co Columbia S C
S R Dee Bloomingdale Ind
Denver Sewer Pipe & Clay Co Denver 1 Colo
Gladding-McBean & Co San Francisco 3 Calif
Great Falls Brick Co Great Falls Mont
Lehigh Sewer Pipe & Tile Co Ft Dodge Ia
Sealcon Products Inc Minneapolis 2 Minn
Sheffield Brick & Tile Co Sheffield Iowa
Streator Drain Tile Co Streator Ill
Washington Brick & Lime Co Spokane 8 Wash

TILE—concrete drain

Concrete Products Corp Humboldt Iowa
Graystone Concrete Prod Co 134 Nickerson St Seattle 9 Wash

TILE—floor, asphalt

Armstrong Cork Co Lancaster Pa
Johns-Manville Corp 22 E 40th New York 16 N Y (224)

TILE—floor, non-slip

American Abrasive Metals Co Irvington 11 N J
The Safe Tread Co Inc 30 Vesey New York 7 N Y

TILE—floor, rubber

American Tile & Rubber Co Trenton N J
Armstrong Cork Co Lancaster Pa
The B F Goodrich Co Akron Ohio
Goodyear Tire & Rubber Co Inc Akron O
Hood Rubber Co Inc Watertown Mass
R C A Rubber Co Akron O
Tile-Tex Co Chgo Hgts Ill
Wright Rubber Prod Co Racine Wis

TILE—glazed

Acme Brick Co Fort Worth 2 Texas
Cambridge Tile Mfg Co Cincinnati 15 O
Denver Sewer Pipe & Clay Co Denver Colo
Gladding-McBean & Co San Francisco 3 Calif
National Fireproofing Corp Pittsburgh Pa
Streator Drain Tile Co Streator Ill

TILE—gypsum

Certain-teed Prod Corp 120 S La Salle Chgo Ill (215)
Sealcon Products Inc Minneapolis 2 Minn
U S Gypsum Co 300 W Adams Chgo Ill

TILE—hollow building

Acme Brick Co Ft Worth Tex
Adel Clay Products Co Des Moines Iowa
Concrete Products Corp Humboldt Iowa
S R Dee Bloomingdale Ind
Denver Sewer Pipe & Clay Co Denver Colo
Graystone Concrete Prod Co 134 Nickerson St Seattle 9 Wash
Great Falls Brick Co Great Falls Mont
National Fireproofing Corp Pittsburgh Pa
Sealcon Products Inc Minneapolis 2 Minn
Sheffield Brick & Tile Co Sheffield Iowa
Streator Drain Tile Co Streator Ill
Washington Brick & Lime Co Spokane 8 Wash

TILE—wall

Armstrong Cork Co Lancaster Pa
Cambridge Tile Mfg Co Cincinnati 15 O
Gibbs Boardtile Corp 636D N Aberdeen St Chicago 22 Ill
Gladding-McBean & Co San Francisco 3 Calif
Marsh Wall Products Inc Dover Ohio (192)
Monarch Tile Mfg Corp Detroit 1 Mich (steel)
Prestile Mfg Co 2860 Lincoln Av Chicago 13 Ill (200)
S & W Moulding Co Columbus 6 Ohio (plastic)
Superior Plastic Co 426 N Oakley Chicago Ill (plastic)
Tylac Co Monticello Ill

TIMBER APPRAISERS & ESTIMATORS

C V Clarke P O Box 1385 Jackson Miss
Thos F Grayson Prescott 5 Ark
The James Lacey Company 231 S La Salle St Chgo 4 Ill
Lemieux Bros Inc New Orleans 12 La
James W Sewall Co Old Town Me (76)
H M Spain & Co Commerce Title Bldg Memphis Tenn

TIME REVERSING SWITCH—dry kiln

Foxboro Co Foxboro Mass
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Standard Dry Kiln Co Indianapolis Ind

TIRES & TUBES—truck

The Dayton Rubber Mfg Co Dayton 1 Ohio
Firestone Tire & Rubber Co Akron Ohio (276)
General Tire & Rubber Co Akron 9 Ohio
The B F Goodrich Co Akron Ohio
Goodyear Tire & Rubber Co Inc Akron Ohio
Kelly-Springfield Tire Co Cumberland Md
Mansfield Tire & Rubber Co Mansfield O
Swan Rubber Co Bucyrus Ohio
United States Rubber Co 1230 6th Av New York 20 N Y

TOOLS—boring

Armstrong Bros Tool Company 300 N Francisco Av Chgo Ill
Circo Tool Co Milwaukee 3 Wis
E W Deuse Co Chester Conn
Flynn Mfg Co Detroit Mich
Gairing Tool Co Detroit Mich
Greenlee Bros & Co Rockford Ill
Pratt & Whitney West Hartford Conn
The Precision Tool Co Inc P O Box 155 Brooklyn 1 N Y
Sandvik Saw & Tool Corp 47 Warren St New York 7 N Y
The Stanley Works New Britain Conn (272)
Star Expansion Bolt Co 147 Cedar St New York 6 N Y

TOOLS—carpenters

E C Atkins & Co Indianapolis 9 Ind
Crescent Tool Co Jamestown N Y
Henry Disston & Sons Inc Philadelphia Pa
C Drew & Co Kingston Mass
Evansville Tool Works of The American Fork & Hoe Co Evansville Ind
Greenlee Tool Co Rockford Ill
Leetonia Tool Co Leetonia Ohio
Marion Tool Corp Marion Ind
Mephisto Tool Co Inc Hudson N Y
Millers Falls Co Greenfield Mass
Ox-Wall Tool Co 928 Broadway New York 10 N Y
Peck Stow & Wilcox Co Southington Conn
Rainey-Tool Co Grove City Pa
Sandvik Saw & Tool Corp 47 Warren St New York 7 N Y
Sargent & Co New Haven 9 Conn (295)
Stanley Tools New Britain Conn (272)
John Stortz & Son Inc Philadelphia 6 Pa
Yates-American Machine Co Beloit Wis

TOOLS—logging

Acme Tool Works Inc Seattle 4 Wash
E C Atkins & Co Indianapolis 9 Ind
American Fork & Hoe Co Cleveland 15 Ohio
American Logging Tool Co Evart Mich (501)
Corley Mfg Co Chattanooga 1 Tenn
C Drew & Co Inc Kingston Mass (marline spikes)
Sandvik Saw & Tool Corp 47 Warren St New York 7 N Y
Skookum Co Inc Portland Ore
John Stortz & Son Inc Philadelphia 6 Pa
Young Iron Wks Seattle Wash

TOOLS—painters' & paperhangers'

Atlas-Ansonia Co North Haven Conn
Otto Bernz Co Rochester N Y
Collmer Bros South Bend 4 Ind
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
General Engineering Corp Charlotte Mich
Lamson & Goodnow Mfg Co Shelburne Falls Mass
Murray-Black Co Springfield O
Pioneer Tool Co Inc Bloomfield N J
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Red Devil Tools Irvington 11 N J(288)
Ridgely Trimmer Co Springfield O
Stencil Specialty Co Jersey City N J
John Stortz & Son Inc Philadelphia 6 Pa
Warner Mfg Co 801 16th Av SE Minneapolis 14 Minn
Wendell Mfg Co 4234 N Lincoln Av Chgo 18 Ill

TOOLS—plumbers'

Armstrong Bros Tool Co 300 N Francisco Av Chgo Ill
Armstrong Mfg Co Bridgeport Conn
Baltimore Tool Works Baltimore 30 Md
Otto Bernz Co Rochester N Y
Collmer Bros South Bend 4 Ind
Crane Company 836 S Michigan Av Chgo Ill
Crescent Tool Co Jamestown N Y
Delaware Tool Steel Corp Wilmington 99 Del
C Drew & Co Kingston Mass
Hood Bros Philadelphia 24 Pa
William Johnson Inc Newark N J
Leetonia Tool Co Leetonia Ohio
Millers Falls Co Greenfield Mass
Misener Mfg Co Inc Syracuse N Y
Oxford Tool Co Phil Pa
Peck Stow & Wilcox Co Southington Conn
Plomb Tool Co Los Angeles Cal
Rainey-Tools Grove City Pa
John Stortz & Son Inc Philadelphia 6 Pa
A L Swett Iron Works Medina N Y

TOOLS—portable electric

Chicago Pneumatic Tool Co 6 E 44th St New York 17 N Y
Independent Pneumatic Tool Co 600 W Jackson Blvd Chicago 6 Ill
Millers Falls Co Greenfield Mass
Milwaukee Electric Tool Corp 5360 W State St Milwaukee 8 Wis
Skilsaw Inc 5033 N Elston Av Chgo 30 Ill
U S Electrical Tool Co Cincinnati 14 O
Fred W Wappat Mayville N Y (407)

TOOLS—split ring grooving

Greenlee Bros & Co Rockford Ill
Misener Mfg Co Inc Syracuse N Y
Timber Engineering Co 1319 Eighteenth St N W Washington 6 D C

TORCHES—blow

E C Atkins & Co Indianapolis 9 Ind
Otto Bernz Co Rochester N Y
Clayton & Lambert Mfg Co Louisville 10 Ky
Detroit Torch & Mfg Co Detroit Mich
Geo W Diener Mfg Co 400 N Monticello Ave Chicago Ill
Everhot Mfg Co 57 S 19th Ave Maywood Ill
Hauck Mfg Co 126 10th Brooklyn N Y
Huffman Mfg Co Dayton Ohio
Justrite Mfg Co 2061 Southport Ave Chgo Ill
Lenk Mfg Co Newton Lower Falls Mass
Pittsburgh Plate Glass Co Pittsburgh 19 Pa (169)
Prentiss Wabers Products Co Wisconsin Rapids Wis
The Turner Brass Wks Sycamore Ill
Unique Mfg Co Inc 221 Whiting Chgo Ill
P Wall Mfg Supply Co Grove City Pa

TRACTORS

Allis-Chalmers Mfg Co Milwaukee Wis (398)
Caterpillar Tractor Co Peoria Ill
International Harvester Co 180 N Michigan Chgo 1 Ill
R G LeTourneau Inc Peoria 3 Ill (rubber tired, Diesel)
Massey-Harris Co Racine Wis

Number in parenthesis indicates page on which advertisement appears

The Oliver Corp Industrial Div 19300 Euclid Av Cleveland 17 Ohio
Elwell Parker Elec Co Cleveland Ohio
Silent Hoist & Crane Co 860 63rd Brooklyn 20 N Y (402)

TRAILERS—commercial

Dorsey Trailers Elba Ala (403)
Eberhard Mfg Co Div Eastern Malleable Iron Co Cleveland 4 Ohio
Fruehauf Trailer Co Detroit Mich
W C Nabors Co Mansfield La
A Streich & Bros Co Oshkosh Wis
U S-Challenge Co Batavia Ill
Utility Trailer Mfg Co Los Angeles 54 Calif
Wentworth & Irwin Portland Ore

TRAILERS—logging

Carter Mfg Co Memphis 2 Tenn
Dorsey Trailers Elba Ala (403)
Four Wheel Drive Auto Co Clintonville Wis
Fruehauf Trailer Co Detroit Mich
International Harvester Co 180 N Michigan Av Chgo 1 Ill
W C Nabors Co Mansfield La
Page & Page Co 0605 S W Curry Portland 1 Ore
Pointer Willamette Co Portland Ore
A Streich & Bros Co Oshkosh Wis
Trailer Co of America Cincinnati O
Utility Trailer Mfg Co Los Angeles 54 Calif
Wentworth & Irwin Portland Ore

TRAILERS—platform industrial

Beall Pipe & Tank Corp Portland Ore
International Harvester Co 180 N Michigan Av Chgo 1 Ill
R G LeTourneau Inc Peoria 3 Ill
Mercury Mfg Co 4044 S Halsted Chgo Ill
Nutting Truck & Caster Co Faribault Minn
Pointer Willamette Co Portland Ore
Service Caster & Truck Div of Domestic Industries Inc Albion Mich
A Streich & Bros Co Oshkosh Wis
Trailer Co of America Cincinnati O
Whitehead & Kales Co Detroit Mich

TRANSITS—surveyors

Eugene Dietzgen Co 2425 N Sheffield Chgo Ill
L S Starrett Co Athol Mass
Warren Knight Co Philadelphia 7 Pa

TRAPS—electric for insects

Detjen Corp 303 W 42nd St New York 18 N Y
Electric Fly Screen Co Inc Lindenhurst L I N Y
Electric Screen Door Corp 216 N Clinton Chgo Ill
Lyon Rural Electric Co San Diego 12 Cal
National Elec Screen Corp 549 W Washington Chgo 6 Ill
Warner Electric Co Inc 215 W Ohio Chgo Ill

TRAPS—steam

Crane Company 836 S Michigan Chgo Ill
C A Dunham Company 450 E Ohio Chgo Ill
Grinnell Co Providence R I
James P Marsh Corp 2073 N Southport Av Chgo 14 Ill
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Trane Co La Crosse Wis
Warren Webster & Co Camden N J

TREADS—stair

Alan Wood Steel Co Conshohocken Pa (287)
American Abrasive Metals Co Irvington N J
American Mason Safety Tread Co Lowell Mass
American Pressed Steel Co Phil Pa
Blaw Knox Co Pittsburgh Pa
Chase Brass & Copper Co Waterbury 91 Conn (brass)
Consolidated Expanded Metal Co Wheeling W Va
Decatur Iron & Steel Co Decatur Ala
Harrison Steel Cabinet Co 4718 W 5th Chgo Ill
Inland Steel Co 38 S Dearborn Chgo 3 Ill
International Steel Co Evansville Ind
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Morgan Co Oshkosh Wis
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
Safe Tread Co Inc 30 Vesey NY 7 NY
F P Smith Wire & Iron Works Inc 2346 N Clybourn Av Chicago 14 Ill
Frank C Snedaker & Co Inc Philadelphia 40 Pa
So-Lo Works Inc Loveland Ohio
Truscon Steel Co Youngstown O
Wooster Products Inc Wooster Ohio (safety)
Youngstown Manufacturing Inc 66 S Prospect Youngstown 6 Ohio (102)

TREADS—wood

SEE LUMBER CLASSIFICATION BEGINNING PAGE 479

TRELLIS—wood

Concord Woodworking Co West Concord Mass
Kinzua Pine Mills Co Kinzua Ore (31)
Nashotah Moulding & Mfg Co Nashotah Wis
Geo J Silbernagel 8 S Michigan Av Chicago 3 Ill
Harry M Wolfe 666 Lake Shore Drive Chicago 11 Ill

TRIM SHAPES—extruded aluminum

Allmetal Weatherstrip Co 229 W Ohio Chgo Ill
Aluminum Co of America Pittsburgh 19 Pa (136-137)
Ames Metal Moulding Co Inc 228 E 144th St New York 51 N Y
J G Braun Co 609 S Paulina Chgo 12 Ill
Cambridge Tile Mfg Co Cincinnati 15 O
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Marsh Wall Prod Inc Dover Ohio (192)
Metal Trims Inc Youngstown 2 Ohio
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
Samson Products Co 4238 N Leavitt Av Chgo 18 Ill
Standard Moulding Co Inc 33 W 42nd St New York 18 N Y
Trimedge Inc Youngstown 1 Ohio
Wooster Products Inc Wooster Ohio
Youngstown Manufacturing Inc 66 S Prospect Youngstown 6 Ohio (102)

TRIM SHAPES—extruded plastic

Extruded Plastics Inc Norwalk Conn
Irvington Varnish & Insulator Co Irvington N J
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Marsh Wall Prod Inc Dover Ohio (192)
Plastex Trim Corp Columbus 3 Ohio
Presstite Engineering 3900 Chouteau Av St Louis 10 Mo
Youngstown Manufacturing Inc 66 S Prospect Youngstown 6 Ohio (102)

TRIM SHAPES—plastic

Brasco Mfg Co Harvey Ill
General Electric Co Schenectady 5 N Y
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Marsh Wall Prod Inc Dover Ohio (192)
R D Werner Co Inc 295 Fifth Av New York 16 N Y
Youngstown Manufacturing Inc 66 S Prospect Youngstown 6 Ohio (102)

TROLLEYS—I-beam overhead

Chester Mfg Co Lisbon Ohio
Chisholm Moore Hoist Corp Tonawanda N Y
Coffing Hoist Co Danville Ill
Industrial Brown Hoist Corp Bay City Mich
Link-Belt Co 300 W Pershing Rd Chgo
Reading Chain & Block Corp Reading Pa
Richards-Wilcox Mfg Co Aurora Ill
Robbins & Myers Inc Springfield Ohio
David Round & Son Cleveland 5 Ohio

TRUCK BODIES

Beall Pipe & Tank Corp Portland Ore
Carter Mfg Co Memphis 2 Tenn
Indiana Body Co 615-621 S H St Richmond Ind
Pointer-Willamette Co Portland 5 Ore
A Streich & Bros Co Oshkosh Wis
Wentworth & Irwin Portland Ore
Gar Wood Industries Inc Detroit 11 Mich

TRUCK BODIES—steel dump

Anthony Co Streator Ill
Beall Pipe & Tank Corp Portland Ore
Heil Co Milwaukee Wisc
Houston Blow Pipe & Sht Met Wks Houston Tex (400-401)
Kewanee Mfg Co Kewanee Ill
Perfection Steel Body Co Galion O
Pointer-Willamette Co Portland 5 Ore
St Paul Hydraulic Hoist Co Minneapolis 14 Minn
Stimmel Winch Co 37-24 33rd St Long Island City 1 N Y
Gar Wood Industries Inc Detroit Mich

TRUCK BODIES—wood cargo

Farmers Lumber & Supply Co Sioux City Iowa
Perfection Steel Body Co Galion Ohio
Pointer-Willamette Co Portland 5 Ore
Stoughton Cab & Body Co Stoughton, Wis
A Streich & Bros Co Oshkosh Wis
Wentworth & Irwin Portland Ore
Gar Wood Industries Inc Detroit Mich

TRUCK CABS

Four Wheel Drive Auto Co Clintonville Wis
Indiana Body Co 615-621 S H St Richmond Ind
Kenworth Motor Truck Corp Seattle 11 Wash

TRUCKS—dry kiln

American Car & Foundry Co 30 Church NY NY
The Filer & Stowell Co Milwaukee 7 Wis
Grand Rapids Vapor Kiln Inc Grand Rapids Mich
Howe Scale Co Rutland Vermont
Hyster Co Portland 8 Ore & Peoria 1 Ill
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Standard Dry Kiln Co Indianapolis Ind
Yale & Towne Mfg Co Phil Pa (269)

TRUCKS—hand

Acme Tool Works Inc Seattle 4 Wash
Chattanooga Wheelbarrow Co Chattanooga 2 Tenn
Colson Corp Elyria Ohio
Fairbanks Co 393 Lafayette NY 3 NY
Howe Scale Co Rutland Vt
Lewis-Shepard Products Inc Boston 72 Mass
Nutting Truck & Caster Co Faribault Minn
Morse Metal Products Co Inc 295 E 2nd St New York 9 N Y
Orangeville Mfg Co Orangeville, Pa
Rapids-Standard Co Inc Grand Rapids 2 Mich (396)
The Sabin Mach Co 6536 Carnegie Av Cleveland 3 Ohio
Service Caster & Truck Div of Domestic Industries Inc Albion Mich
A Streich & Bros Co Oshkosh Wis
Yale & Towne Mfg Co Phil Pa (269)

TRUCKS—lift

The Colson Corp Elyria Ohio
Dallas Mach & Locomotive Wks Dallas Ore
Elwell Parker Elec Co Cleveland 14 Ohio
Hyster Co Portland 8 Ore & Peoria 1 Ill
Lewis-Shepard Products Inc Boston 72 Mass
Nutting Truck & Caster Co Faribault Minn
Ross Carrier Co Benton Harbor Mich
Service Caster & Truck Div of Domestic Industries Inc Albion Mich
Silent Hoist & Crane Co 860 63rd Brooklyn 20 N Y (402)
Yale & Towne Mfg Co Phil Pa (269)

TRUCKS—lift with crane

Elwell-Parker Elec Co Cleveland 14 O
Hyster Co Portland 8 Ore & Peoria 1 Ill
The Ross Carrier Co Benton Harbor Mich
Silent Hoist & Crane Co 860 63rd Brooklyn 20 N Y (402)
Taylor Machine Works Louisville Miss

Number in parenthesis indicates page on which advertisement appears

TRUCKS—mill & factory

Buda Co Harvey Ill
Cleveland Steel Specialty Co Inc Cleveland 5 Ohio
Fairbanks Co 393 Lafayette NY 3 NY
Fibre Specialty Mfg Co Kennett Square Pa
Chas E Francis Co Huntington Ind
Hamilton Caster & Mfg Co Hamilton O
Hyster Co Portland 8 Ore & Peoria 1 Ill
Lansing Co Lansing Mich
Lewis-Shepard Products Inc Boston 72 Mass
Morse Metal Products Co Inc 295 E 2nd St New York 9 N Y
Nutting Truck & Caster Co Faribault Minn
Ohio Galvanizing & Mfg Co Niles O
Orangeville Mfg Co Orangeville Pa
Sabin Machine Co Cleveland 3 Ohio
Service Caster & Truck Div of Domestic Industries Inc Albion Mich
A Streich & Bros Co Oshkosh Wis
Tucker-Dorsey Mfg Corp Indianapolis Ind
Yale & Towne Mfg Co Phil Pa (269)

TRUCKS—motor

Autocar Co Ardmore Pa
Brockway Motor Co Inc Cortland N Y
Chevrolet Motor Div General Motors Corp Detroit 2 Mich
Diamond T Motor Car Co 4517 W 26th Chgo Ill
Dodge Div Chrysler Corp Detroit Mich
Federal Motor Truck Co Detroit Mich
Ford Motor Co Dearborn Mich (391)
Four Wheel Drive Auto Co Clintonville Wis
General Motors Truck Co Pontiac Mich
International Harvester Co 180 N Michigan Av Chgo 1 Ill
Kenworth Motor Truck Corp Seattle 11 Wash
R G LeTourneau Inc Peoria 3 Ill
Mack-International Motor Truck Corp 350 5th Av NY 1 NY
Marmon-Herrington Co Inc Indianapolis 7 Ind
Reo Motor Car Co Lansing Mich
Sterling Motor Truck Co Inc Milwaukee 1 Wis
Stewart Motor Corp Buffalo N Y
Studebaker Sales Corp South Bend Ind
Wentworth & Irwin Inc Portland 14 Ore
White Motor Co Cleveland O
Willys-Overland Motors Inc Toledo O

TRUSSES—roof, steel

Bethlehem Steel Co Bethlehem Pa
Brasco Mfg Co Harvey Ill
Decatur Iron & Steel Co Decatur Ala
Erie Steel Construction Co Erie Pa
Gabriel Steel Co Detroit Mich
Houston Blow Pipe & Sht Met Wks Houston Tex (400-401)
International Steel Co Evansville Ind
Geo L Mesker Steel Corp Evansville Ind
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Republic Steel Corp Cleveland 1 Ohio
St Paul Foundry & Mfg Co St Paul 3 Minn
Truscon Steel Co Youngstown O

TRUSSES—roof, wood

American Roof Truss Co 6848 Stony Island Av Chgo 49 Ill (61)
McKeown Bros Co 5235 S Keeler Chgo Ill
Rilco Laminated Products Inc St Paul 1 Minn
Roof Structures Inc 45 W 45 NY NY
Tacoma Lumber Fabricating Co Tacoma 1 Wash
Timber Structures Inc Portland 8 Ore
Unit Structures Inc Peshtigo Wis

TUBS—laundry

Alberene Stone Corp of Virginia 419 4 Ave NY NY
Concrete Fixtures Co 3666 W 38th Chgo 32 Ill
Crane Co 836 S Michigan Ave Chgo Ill
General Ceramics Co Metuchen N J
Kohler Co Kohler Wis
Richmond Radiator Co 835 Fifth Av NY 17 NY
Standard-Elsmere Granite Co 1754 N Spaulding Chgo Ill
Trenton Potteries Co Trenton N J
U S-Challenge Co Batavia Ill
Vermont Soapstone Co Perkinsville Vt

TURNBUCKLES

Acme Tool Works Inc Seattle 4 Wash
American Steel & Wire Co Cleveland O (309)
Arro Expansion Bolt Co Marion Ohio
Bethlehem Steel Co Bethlehem Pa
P & F Corbin New Britain Conn
Fiwale Equipment Mfg Co 165 Church NY 7 NY
Hubbard & Co 6301 Butler St Pittsburgh 1 Pa
Kelly Steel Works Inc 5767 W 65th Chgo 38 Ill
The Thomas Laughlin Co Portland 6 Maine
Louden Machinery Co Fairfield Iowa
Maine Steel Products Inc South Portland Maine
National Mfg Co Sterling Ill
St Louis Screw & Bolt Co St Louis Mo
Sheffield Steel Corp Kansas City Mo
Stewart Iron Wks Co Inc Cincinnati O
Turnbuckles Inc 650 W Lake Chgo Ill
Upson-Walton Co Cleveland O
Wilcox Crittenden & Co Inc Middletown Conn

TURNTABLES—lumber

American Mfg Co Inc Tacoma 2 Wash (404)
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Standard Dry Kiln Co P O Box 541 Indianapolis Ind

TURPENTINE

American Turpentine & Tar Co Ltd New Orleans La
American Turpentine Farmers Assn Cooperative Valdosta Ga
Columbia Naval Stores Co Savannah Ga
Elroy Naval Stores Vidalia Ga
Wm S Gray & Co 342 Madison Av New York 17 N Y
Gum Turpentine Farmers' Cooperative Assn Vidalia Ga
Industrial Chemical Sales Div West Virginia Pulp & Paper Co New York Central Bldg NY NY
Newport Industries Inc 230 Park Av NY NY
Southern Pine Chemical Co Div of The Glidden Co Jacksonville Fla

V BELT DRIVES

Allis Chalmers Mfg Co Milwaukee Wis (398)
Chicago Belting Co 121 N Green Chgo Ill
Corinth Machinery Co Corinth Miss (388)
The Dayton Rubber Mfg Co 2342 W Riverview Av Dayton 1 Ohio
R & J Dick Co Inc Passaic N J
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
The Filer & Stowell Co Milwaukee 7 Wis
Gates Rubber Co 999 S Broadway Denver 17 Colo
The B F Goodrich Co Akron Ohio
Houston Blow Pipe & Sheet Mtl Wks Houston Tex (400-401)
Kent Machine Co Cuyahoga Falls Ohio (407)
Link-Belt Co 300 W Pershing Rd Chgo 9 Ill
Chas A Schieren Co 30-38 Ferry NY 7 NY
Teuscher Pulley & Belting Co St Louis 2 Mo
Thermoid Rubber Div Thermoid Co Trenton 6 N J
Worthington Pump & Mchy Corp Harrison N J

V BELTS & BELTING

Allis-Chalmers Mfg Co Milwaukee 1 Wis (398)
Broadway Rubber Mfg Co 529 E. Broadway Louisville 2 Ky
Chicago Belting Co 121 N Green Chgo Ill
Chicago Rawhide Mfg Co 1301 N Elston Chgo Ill
Victor R. Clark Belting Co 605 W Washington Chgo 6 Ill
Dayton Rubber Mfg Co Dayton O
R & J Dick Co Inc Passaic N J
Durkee-Atwood Co Minneapolis Minn
Gates Rubber Co 999 S Broadway Denver 17 Colo
The B F Goodrich Co Akron Ohio
Goodyear Tire & Rubber Co Inc Akron O
Manheim Mfg & Belting Co Manheim Pa
Page Belting Co Concord New Hampshire
Raybestos-Manhattan Inc Manhattan Rubber Div Passaic N J
Republic Rubber Div Lee Rubber & Tire Corp Youngstown 1 Ohio
Rockwood Mfg Co Indianapolis Ind
Chas A Schieren Co 30-38 Ferry NY 7 NY
Thermoid Rubber Div Thermoid Co Trenton N J
United States Rubber Co 1230 6th Av New York 20 N Y

VALVES—dry kiln, control

The Bristol Co Waterbury 91 Conn
Foxboro Co Foxboro Mass
Grand Rapids Vapor Kiln Inc Grand Rapids 2 Mich
Moore Dry Kiln Co P O Box 4248 Jacksonville 1 Fla (406)
Portable Products Corp C J Tagliabue Div Park & Nostrand Brooklyn 5 NY

VARNISH

Akron Paint & Varnish Co Akron 1 O (24)
Alabastine Paint Products Grand Rapids 9 Mich
American Marietta Co 43 E Ohio Chgo 11 Ill
American Varnish Co 1140 No Branch Chgo Ill
Armstrong Paint & Varnish Works 1330 S Kilbourn Av Chicago 23 Ill
Atlantic Paint & Varnish Wks Wilmington N C
Baker Paint & Varnish Co Jersey City N J
Berry Bros Inc Detroit 7 Mich
Bigelow Varnish Co Newark N J
The Black Diamond Paint & Varnish Works Inc 1209 Bank St Cincinnati 14 Ohio
Boston Varnish Co Boston 49 Mass (178)
Breinig Brothers Inc 1st & Harrison Hoboken N J
Calbar Paint & Varnish Co Philadelphia 25 Pa
Central Paint & Varnish Wks 69 Prospect Brooklyn N Y
Chi-Namel Paint & Varnish Co Minneapolis Minn
Devoe & Raynolds Co Inc 787 1st Av NY 17 NY
E I Du Pont de Nemours & Co Wilmington Del
Elliott Paint & Varnish Co 4523 W Fifth Ave Chgo Ill
Felton Sibley & Co Inc 136 N 4th Philadelphia 6 Pa
Gillespie Varnish Co Dey & Howell Sts Jersey City N J
Glidden Co Cleveland O
Grand Rapids Varnish Corp 565 Godfrey Av S W Grand Rapids 2 Mich
Great Lakes Varnish Wks Inc 2215 N Pulaski Ave Chgo Ill
Keystone Varnish Co 71 Otsego St Brooklyn 31 N Y
Lowe Bros Co Dayton O (173)
John Lucas & Co Philadelphia Pa
Martin Senour Co 2520 Quarry Chgo Ill
John W Masury & Son Inc Sharp & Ostend Baltimore Md
Murphy Paint Div Interchemical Corp 224 McWhorter Newark 1 N J
The O'Brien Corp South Bend 21 Ind
Patterson Sargent Co Cleveland 14 O
Peaslee-Gaulbert Paint & Varnish Co Louisville Ky
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa (169)
Plasti-Kote Co Cleveland 13 O
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Rogers Paint Products Inc Detroit 11 Mich
Sherwin-Williams Co Cleveland O (183)
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Standard Varnish Wks 2589 Richmond Terrace Staten Island N Y
Steelcote Mfg Co St Louis 3 Mo
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
Valentine & Co Inc 11 E 36 NY 16 NY
Vita-Var Corp Newark NJ (508)
Wm Zinsser & Co 56 W 59 NY NY

VARNISH REMOVER

Acme White Lead & Color Wks 8250 St Aubin Av Detroit 11 Mich
Berry Bros Detroit Mich
Boston Varnish Co Boston 49 Mass (178)
Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Glidden Co Cleveland O
Industrial Chemical Development Corp 347 Madison Av New York 17 N Y

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Lowe Bros Co Dayton O (173)
Martin Senour Co 2520 Quarry Chgo Ill
Minnesota Linseed Oil Paint Co Minneapolis 15 Minn
The O'Brien Corp South Bend 21 Ind
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Pittsburgh Plate Glass Co 2000 Grant Bldg Pittsburgh 19 Pa 169)
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Reliable Paste Co 3560 Shields Av Chgo 9 Ill
Savogran Co India Wharf Boston 10 Mass (170)
So-Lo Wks Inc Loveland O
Standard Varnish Wks 2589 Richmond Terrace Staten Island N Y
Stanley Chemical Co E Berlin Conn
Steelcote Mfg Co St Louis Mo
Sterling Paint & Varnish Co Malden 48 Mass
20th Century Paint & Varnish Co 456 Driggs Av Brooklyn 11 N Y
Valentine & Co Inc 11 E 37 NY NY
Vita-Var Corp Newark 2 N J (508)

VENEERS—hardwood

American Plywood Corp New London Wis
Darlington Veneer Co Inc Darlington S C (68)
Frost Veneer & Plywood Co Inc Sheboygan Wis
Marsh Wall Products Inc Dover O (192)
Pearl City Plywood Co Inc Jamestown N Y
Weber Veneer & Plywood Co Shawano Wis

VENETIAN BLINDS

Artistic Venetian Blind Co 1955 Park Av NY NY
Bills Venetian Blind Co 862 E 63rd St Chicago 37 Ill
Bostwick-Goodell Co Norwalk O
Chas W Breneman Co Cincinnati Ohio
Clark & Hammer Inc Belleville N J
Clifton Mfg Co Waco Texas
Columbia Mills Inc 225 5 Av NY NY
Consolidated Venetian Blind Co Houston Tex
Crawford-Austin Mfg Co Waco Tex
Crown Shade & Screen Co Boston Mass
Flint Venetian Blind Mfg Co Flint 5 Mich
W E Hettrick & Son Co Toledo Ohio
Higgin Mfg Co Newport Ky
Hough Shade Corp Janesville Wis
Huttig Sash & Door Co St Louis Mo
Mackin Venetian Blind Co Kankakee Ill
Mars Venetian Blinds Le Mars Ia
Modern Venetian Blinds Inc 261 Fifth Av New York 16 N Y
Warren Venetian Blind Co Minneapolis 13 Minn
Yardley Venetian Blind Co Columbus 15 Ohio

VENETIAN BLIND SLATS

American Rule & Block Co Menominee Mich
Bills Venetian Blind Co 862 E 63rd St Chicago 37 Ill
Chas W Breneman Co Cincinnati Ohio
Jefferson Wood Working Co Louisville Ky
G B Lewis Co Watertown Wis
S E Overton Co So Haven Mich

VENTILATORS—farm, poultry, houses, etc.

Air Devices Inc 17 E 42nd St New York 17 N Y
Arr-O-Line Manufacturers Minneapolis S Minn (246)
Brower Mfg Co Quincy Ill
Clay Equipment Corp Cedar Falls Ia
Farwell Ozmun Kirk & Co St Paul 1 Minn
Franklin Equipment Co Monticello Ia
H D Hudson Mfg Co 589 E Illinois Chgo Ill (311)
King Ventilating Co Owatonna Minn
Klauer Mfg Co Dubuque Ia
La Crosse Steel Roofing & Corrugating Co La Crosse Wis
Lyon Conklin & Co Baltimore 30 Md
Macomb Steel Prod Co Macomb Ill
Olson Mfg Co Albert Lea Minn
Republic Metals & Roofing Materials Inc 4040 W Lake Chgo 24 Ill
Starline Inc Harvard Ill
Trane Co La Crosse Wis
U S-Challenge Co Batavia Ill

VENTILATORS—roof

Air Control Products Inc Coopersville Mich (101)
Air Devices Inc 17 E 42nd New York 17 N Y
Arr-O-Line Manufacturers Minneapolis S Minn (246)
American Blower Corp Detroit 32 Mich
Clay Equipment Co Cedar Falls Ia
Connecticut Blower Co P O Box 884 Hartford 1 Conn
Diehl Mfg Co 1124 Finderne Av Somerville N J
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Farwell Ozmun Kirk & Co St Paul 1 Minn
Houston Blow Pipe & Sht Met Wks Houston Tex (400-401)
Ilg Electric Ventilating Co 2850 N Crawford Av Chgo 41 Ill
King Ventilating Co Owatonna Minn
Klauer Mfg Co Dubuque Iowa
Lyon Conklin & Co Baltimore 30 Md
Metalcraft Co Boston 20 Mass
Milcor Steel Co Milwaukee Wis (319)
Pennsylvania Wire Glass Co Philadelphia 3 Pa
Republic Metals & Roofing Materials Inc 4040 W Lake Chgo 24 Ill
St Paul Corrugating Co St Paul Minn
Starline Inc Harvard Ill
Swartwout Co 18511 Euclid Av Cleveland 12 Ohio (254)
Trane Co La Crosse Wis
Williams-Wallace Co San Francisco 7 Calif
Willis Steel Corp Galesburg Ill

VENTILATORS—wall

Adams Co Dubuque Ia
Air Control Products Inc Coopersville Mich (101)
Air Devices Inc 17 E 42nd New York 17 N Y
The Airolite Co Marietta Ohio
Arr-O-Line Manufacturers Minneapolis S Minn (246)
Chattanooga Implement & Mfg Co Chattanooga 6 Tenn
Diehl Mfg Co 1124 Finderne Av Somerville N J
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Farwell Ozmun Kirk & Co St Paul 1 Minn
Ilg Electric Ventilating Co 2850 N Crawford Av Chgo 41 Ill
Klauer Mfg Co Dubuque Ia
Metalcraft Co Boston 20 Mass
Monarch Metal Weatherstrip Corp St Louis 14 Mo (glass block)
Northwest Metal Prod Inc Seattle Wash
Republic Metals & Roofing Materials Inc 4040 W Lake Chgo 24 Ill
F A Smith Mfg Co Inc Rochester N Y
Starline Co Harvard Ill
A L Swett Iron Works Medina N Y
Trane Co La Crosse Wis
Universal Blower Co Birmingham Mich
Victor Elec Prod Inc Cincinnati Ohio (333)
Wayne Agricultural Works Inc Goldsboro N C
Wayne Mfg Co Detroit 10 Mich
Western Steel Prod Co Duluth Minn

VENTILATORS—window

Arr-O-Line Manufacturers Minneapolis S Minn (246)
Beh & Co Inc 1150 Broadway NY NY
Diehl Mfg Co 1124 Finderne Av Somerville N J
Emerson Electric Mfg Co St Louis 3 Mo
Farwell Ozmun Kirk & Co St Paul 1 Minn
Gold Seal Mfg Co 1228 W Kinzie Chgo 22 Ill
The Ideal Ventilator Co 160 Atlantic Av Providence 7 R I
Ilg Electric Ventilating Co 2850 N Crawford Av Chgo 41 Ill
James Mfg Co Fort Atkinson Wis
W B Marvin Mfg Co Urbana O
Plymouth Stamped Metal Co Galion O
Protective Ventilator Co 310 W 92 NY NY
Signal Elec Mfg Co Menominee Mich
Starline Inc Harvard Ill
Victor Elec Prod Inc Cincinnati Ohio (333)
Wayne Mfg Co Detroit Mich

VISES

American Scale Co Kansas City 6 Mo (machinist, utility)
Armstrong Mfg Co Bridgeport 8 Conn (pipe)
Desmond-Stephan Mfg Co Urbana Ohio
General Hardware Co 3618 W Pierce St Milwaukee 4 Wis
Grand Specialties Co 3101 W Grand Av Chgo Ill
National Sewing Machine Co Belvidere Ill
Richards-Wilcox Mfg Co Aurora Ill (woodworkers)

WAGONS—logging & lumber

Electric Wheel Co Quincy Ill
Hyster Co Portland 8 Ore & Peoria 1 Ill
Lindsey Wagon Co Laurel Miss
Pointer-Willamette Co Portland 5 Ore
A Streich & Bros Co Oshkosh Wis

WALLBOARD—fibre insulating

Armstrong Cork Co Lancaster Pa
Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Prod Corp 120 S LaSalle Chgo Ill (215)
Fir-Tex Porter Bldg Portland 4 Ore
Flintkote Co 30 Rockefeller Plaza NY NY
Gibbs Boardtile Corp 636D N Aberdeen St Chicago 22 Ill
Hawaiian Cane Products Ltd Culver City Calif
Homasote Co Trenton N J
Insulite Div Minnesota & Ontario Paper Co Baker Arcade Bldg Minneapolis 2 Minn (194-195)
Johns-Manville Corp 22 E 40th New York 16 NY (224)
National Gypsum Co Buffalo 2 N Y (198-199)
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Plastergon Wallboard Co 196 Philadelphia Av Buffalo 7 NY
Upson Co Lockport NY (190)
Wood Conversion Co St Paul Minn

WALLBOARD—gypsum

Celotex Corp 120 S LaSalle Chgo Ill (226-227)
Certain-teed Products Corp 120 S LaSalle Chgo 3 Ill (215)
Grand Rapids Plaster Co Grand Rapids 2 Mich
National Gypsum Co Buffalo 2 N Y (198-199)
Pacific Portland Cement Co San Francisco 6 Cal
Schumacher Wall Board Corp South Gate Cal
U S Gypsum Co 300 W Adams Chgo Ill

WALLBOARD—marble finish

Gibbs Boardtile Corp 636D N Aberdeen Chgo Ill
Marsh Wall Prod Inc Dover O (192)
Prestile Mfg Co 2860 Lincoln Av Chgo 13 Ill (200)

WALLBOARD—paper

Bird & Son Inc East Walpole Mass
Fleming & Sons Inc Dallas Tex
Upson Co Lockport N Y (190)

WALLBOARD—tiled

Armstrong Cork Co Lancaster Pa
Barclay Mfg Co 385 Gerard Av Bronx NY
Certain-teed Prod Corp 120 S LaSalle Chgo Ill (215)
Gibbs Boardtile Corp 636D N Aberdeen Chgo Ill
Johns-Manville Corp 22 E 40th New York 16 NY (224)
Marsh Wall Prod Inc Dover O (192)
National Gypsum Co 235 Delaware Av Buffalo 2 N Y (198-199)
Plastergon Wallboard Co 196 Philadelphia Av Buffalo 7 NY
Prestile Mfg Co 2860 Lincoln Av Chgo 13 Ill (200)
Tylac Co Monticello Ill
The Tyle-Bord Co Inc 700 Mercer St Seattle 9 Wash
U S Gypsum Co 300 W Adams Chgo Ill
Upson Co Lockport N Y (190)

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WALLBOARD—woodgrain finish

Certain-teed Products Corp 120 S La-Salle Chgo 3 Ill (215)
Gibbs Boardtile Corp 636D N Aberdeen Chgo Ill
Marsh Wall Prod Inc Dover O (192)
National Gypsum Co 325 Delaware Av Buffalo 2 N Y (198-199)
Prestile Mfg Co 2860 Lincoln Av Chgo 13 Ill (200)
U S Gypsum Co 300 W Adams Chgo Ill

WALL COPING

Clay City Pipe Co Uhrichsville Ohio
Dennison Sewer Pipe Corp Cleveland 15 Ohio
Denver Sewer Pipe & Clay Co Denver 1 Colo
W S Dickey Clay Mfg Co Kansas City Mo
Evans Pipe Co Uhrichsville Ohio
Laclede-Christy Clay Prod Co St Louis Mo
Lehigh Sewer Pipe & Tile Co Ft Dodge Ia
Robinson Clay Prod Co Akron O
Sealcon Products Inc Minneapolis 2 Minn
Streator Drain Tile Co Streator Ill
Washington Brick & Lime Co Spokane 8 Wash
What Cheer Clay Prod Co What Cheer Ia

WALLPAPER

The Birge Co Inc 390 Niagara St. Buffalo 1 NY
Buffalo Wallcraft Co Buffalo NY
Century Wallpaper Mills Decatur Ill
Fleming & Sons Inc Dallas Tex
Imperial Paper & Color Corp Glens Falls NY
Lennon Wallpaper Co Joliet Ill
Plattsburgh Wallpaper Co Plattsburgh N Y
Prager Co Worcester Mass
Stamford Wallpaper Co Stamford Conn
Standard Coated Products Div of Interchemical Corp 350 Fifth Av NY 1 NY
Star-Peerless Wallpaper Mills 1737
Statter Wallpaper Mills Crystal Lake Ill
Howard Chgo Ill
Trimz Co Inc Merchandise Mart Chgo Ill (ready pasted)
United Wallpaper Factories Inc 3330 Fillmore Chgo Ill

WALL SIZE

Alabastine Paint Prod Grand Rapids Mich
Baltimore Paint & Color Works Baltimore 23 Md
Casein Co of America 350 Madison Av NY NY (181)
Chi-Namel Paint & Varnish Co Minneapolis Minn
Cleveland Cleaner & Paste Co Cleveland 2 Ohio
Commercial Paste Co Columbus 8 O
Consumers Glue Co St Louis 6 Mo
Farwell Ozmun Kirk & Co St Paul 1 Minn
H B Fuller Co 255 Eagle St Paul 2 Minn
The Glidden Co 11001 Madison Av Cleveland 2 Ohio
Miner-Hillard Milling Co Wilkes Barre Pa
Muralo Co Inc 572 Richmond Terrace Staten Island 1 N Y
Paisley Products Inc 1770 Canalport Av Chgo 16 Ill
Patent Cereals Co Geneva N Y
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Pyramid Process Co Inc East Rochester N Y
Reardon Co St Louis Mo (185)
Reliable Paste Co-3560 Shields Av Chgo 9 Ill
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Truscon Laboratories Detroit Mich
United Gilsonite Laboratories Scranton Pa
United States Gypsum Co 300 W Adams St Chicago 6 Ill
Vita-Var Corp Newark NJ (508)
Wesco Waterpaints Inc East Boston Mass
The Wilbur & Williams Co Boston 16 Mass

WALLPAPER REMOVERS

The Commercial Paste Co Columbus 8 Ohio
The Glidden Co 11001 Madison Av Cleveland 2 Ohio
Pyramid Process Co Inc East Rochester N Y
Red Devil Tools Irvington 11 N J (steam) (288)
Reliable Paste Co 3560 Shields Av Chgo 9 Ill
Tamms Silica Co Builders Bldg Chgo Ill
Warner Mfg Co Minneapolis 14 Minn (steam)

WAREHOUSING—field

Douglas-Guardian Warehouse Corp 118 N Front New Orleans 1 La
Lawrence Warehouse Co W P Story Bldg Los Angeles Calif
St Louis Terminal Warehouse Co St Louis Mo

WATERPROOFING—asphalt

Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Bird & Son Inc East Walpole Mass
Black Cat Corp Hattiesburg Miss
Philip-Carey Co Cincinnati 15 O (235)
Certain-teed Prod Corp 120 S LaSalle Chgo Ill (215)
Chi-Namel Paint & Varnish Co Minneapolis Minn
Evercrete Corp 19 W 44th NY 18 NY
Flintkote Co 30 Rockefeller Plaza NY NY
Ford Roofing Products Co 111 W Washington Chgo 2 Ill
The Foy Paint Co Inc Cincinnati 12 Ohio (asphaltum substance)
Glidden Co Cleveland Ohio
A C Horn Co 43-36 Tenth Long Island City N Y
Johns-Manville Corp 22 E 40th New York 16 NY (224)
Keystone Asphalt Products Co 43 E Ohio St Chicago 11 Ill
Lastik Products Co Inc Pittsburgh 22 Pa
The Lenon Co 4425 S Oakley Chgo Ill
Mar-Kay Mfg Co 2715 S Second St St Louis Mo
Mixtite Corp North Haven Conn
B F Nelson Mfg Co Minneapolis Minn
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Pecora Paint Co American & Venango Philadelphia 40 Pa
Rand-Williams Mfg Co Inc 377 Broadway New York 13 N Y
Reilly Tar & Chemical Corp Indianapolis 4 Ind
Sealcon Prod Inc 927 Second Av S Minneapolis 2 Minn
Servicized Products Corp 6051 W 65th St Chicago 38 Ill
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
The Texas Co 135 E 42nd NY NY (217)
Vita-Var Corp Newark NJ (508)
W F Webster Cement Co Cambridge 41 Mass

WATERPROOFING—integral

Adensite Co Inc 37-19 23rd St L I City NY
American Fluresit Co Inc 635 Rockdale Av Cincinnati 29 Ohio
Anti Hydro Waterproofing Co Newark 8 N J
Breinig Bros Inc Hoboken N J
Central Paint & Varnish Wks 69 Prospect Brooklyn N Y
Ceresit Waterproofing Corp 512 S Canal St Chgo 7 Ill
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Dow Chemical Co Midland Mich
Evercrete Corp 19 W 44th NY 18 NY
Fort Pitt Chem Co Pittsburgh 22 Pa
Harrop Chemical Co 135 Hoboken Av Jersey City 2 N J
A C Horn Co 43-36 Tenth Long Island City 1 N Y
Johns-Manville Corp 22 E 40th New York 16 NY (224)
Kay-Tite Co West Orange N J (344)
Lumino Co Inc 515 Madison Av NY NY
Prima Products Inc 10 E 40th St New York 16 NY (349)
Ranetite Mfg Co 1917 S Broadway St. Louis Mo (353)
Sealcon Prod Inc 927 Second Av S Minneapolis 2 Minn
Solvay Sales Corp 40 Rector NY NY
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Truscon Lab Inc Detroit Mich
Vita-Var Corp Newark 2 N J (508)
Wall Products Inc Newark 2 N J
Weather Seal Co Cincinnati 2 Ohio

WATERPROOFING—liquid

Abesto Mfg Corp Michigan City Ind
Adensite Co Inc 37-19 23rd St L I City NY
American Fluresit Co Inc Cincinnati 29 O
Anti Hydro Waterproofing Co Newark 8 N J
Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Breinig Bros Inc Hoboken N J
Philip-Carey Co Cincinnati 15 O (235)
Central Paint & Varnish Wks 69 Prospect Brooklyn N Y
Cer-A-Seal Corp 221 N LaSalle St Chgo 1 Ill (72)
Ceresit Waterproofing Corp 512 S Canal Chgo Ill
Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
Cre-O-Tox Chem Co Memphis Tenn (79)
Devoe & Raynolds Co Inc 787 First Av NY 17 NY
Evercrete Corp 19 W 44th NY 18 NY
Forman Ford & Co Minneapolis 1 Minn
Fort Pitt Chem Co Pittsburgh 22 Pa
Harrop Chemical Co 135 Hoboken Av Jersey City 2 N J
Hettrick Mfg Co Toledo 1 Ohio
A C Horn Co 43-36 Tenth Long Island City N Y
Johns-Manville Corp 22 E 40th New York 16 NY (224)
Koppers Co Inc Pittsburgh 19 Pa
Lumino Co Inc 515 Madison Av NY NY
Mar-Kay Mfg Co 2715 S Second St St Louis Mo
Minwax Co Inc 11 W 42nd St New York 18 N Y
Mixtite Corp North Haven Conn
Pecora Paint Co American & Venango Philadelphia 40 Pa
Protection Products Mfg Co Kalamazoo Mich (68)
Ranetite Mfg Co 1917 S Broadway St Louis Mo (353)
Reilly Tar & Chemical Corp Indianapolis 4 Ind
Robeson-Preservo Co Port Huron Mich
Sealcon Products Inc Minneapolis 2 Minn
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Tamms-Silica Co 228 N La Salle Chgo 1 Ill
Truscon Labs Detroit Mich
Vita-Var Corp Newark 2 N J (508)
Weather Seal Co Cincinnati 2 Ohio
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass
X-Pando Corp 43-15 36th Long Island City 1 N Y

WATERPROOFING—membrane

Barrett Div Allied Chemical & Dye Corp 40 Rector NY NY (223)
Philip Carey Co Cincinnati 15 O (235)
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Flintkote Co 30 Rockefeller Plaza NY NY
A C Horn Co 43-36 Tenth Long Island City 1 N Y
Johns-Manville Corp 22 E 40th New York 16 NY (224)
Kay-Tite Co West Orange NJ (344)
Koppers Co Inc Pittsburgh 19 Pa
Lastik Products Co Inc Pittsburgh 22 Pa
Lehon Co 4425 S Oakley Av Chgo Ill
Minwax Co Inc 11 W 42nd NY NY
Mixtite Corp North Haven Conn
Presstite Engineering 3900 Chouteau Av St Louis 10 Mo
Prima Products Inc 10 E 40th St New York 16 NY (349)
Rand-Williams Mfg Co Inc 377 Broadway New York 13 N Y
Ranetite Mfg Co Inc St Louis Mo (353)
Reilly Tar & Chemical Corp Indianapolis 4 Ind
Sealcon Products Inc Minneapolis 2 Minn
L Sonneborn Sons Co 88 Lexington Av NY NY (182)
Steelcote Mfg Co St Louis 3 Mo
Vita-Var Corp Newark 2 N J (508)
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Wasco Flashing Co Cambridge Mass (232)

WATERPROOFING—metallic

Belmont Smelting & Refining Works Inc 330 Belmont Av Brooklyn 7 N Y
Ceresit Waterproofing Corp 512 S Canal Chgo 7 Ill
Chase Brass & Copper Co Waterbury 91 Conn
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y

Number in parenthesis indicates page on which advertisement appears

Fort Pitt Chemical Co Pittsburgh 22 Pa
A C Horn Co 43-42 Tenth Long Island City 1 NY
Mixtite Corp North Haven Conn
Ranetite Mfg Co Inc 1917 S Broadway St Louis Mo (353)
Sealcon Prod Inc 927 Second Av S Minneapolis 2 Minn
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
The Sullivan Co Memphis 2 Tenn
Truscon Labs Detroit Mich
Vita-Var Corp Newark 2 N J (508)
Weather Seal Co Cincinnati 2 Ohio

WATERPROOFING—transparent

Adensite Co Inc 37-19 23rd St L I City NY
American Fluresit Co Inc Cincinnati 29 Ohio
Breinig Bros Inc Hoboken N J
Calbar Paint & Varnish Co Philadelphia 25 Pa
Celadri Corp 652 Willis Ave Williston Park NY (347)
Cer-A-Seal Corp 221 N LaSalle St Chgo 1 Ill (72)
Ceresit Waterproofing Corp 512 S Canal Chgo 7 Ill
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Evercrete Corp 19 W 44th NY 18 NY
Fort Pitt Chem Co Pittsburgh 22 Pa
Glidden Co Cleveland Ohio
Harrop Chemical Co 135 Hoboken Av Jersey City 2 N J
A C Horn Co 43-42 Tenth Long Island City 1 NY
Mar-Kay Mfg Co 2715 S Second St St Louis Mo
Minwax Co Inc 11 W 42nd NY NY
B F Nelson Mfg Co Minneapolis Minn
Protection Products Mfg Co Kalamazoo Mich (68)
Ranetite Mfg Co 1917 Broadway St Louis Mo (353)
Sealcon Prod Inc 927 Second Av S Minneapolis 2 Minn
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Sheboygan Paint Co Sheboygan Wis
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
Sterling Paint & Varnish Co Malden 48 Mass
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Truscon Labs Detroit Mich
Vita-Var Corp Newark 2 N J (508)
Weather Seal Co Cincinnati 2 Ohio
Wilbur & Williams Paint Corp 43 Leon St Boston 15 Mass
X-Pando Corp 43-15 36th Long Island City N Y

WATERPROOFING COMPOUNDS—basement, cistern

Abesto Mfg Corp Michigan City Ind
Adensite Co Inc 37-19 23rd St L I City NY
American Asphalt Roof Corp Kansas City Mo
American Fluresit Co Cincinnati 29 O
Anti Hydro Waterproofing Co Newark 8 N J
Barrett Div Allied Chem & Dye Corp 40 Rector NY NY (223)
Philip Carey Mfg Co Cincinnati 15 O (235)
Celadri Corp 652 Willis Av Williston Park NY (347)
Cer-A-Seal Corp 221 N LaSalle St Chgo 1 Ill (72)
Ceresit Waterproofing Corp 512 S Canal Chgo 7 Ill
Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
Chi-Namel Paint & Varnish Co Minneapolis Minn
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
E I DuPont de Nemours & Co Inc Wilmington 98 Del
Flintkote Co 30 Rockefeller Plaza NY NY
Fort Pitt Chem Co Pittsburgh 22 Pa
Haynes Products Co Omaha 3 Neb
A C Horn Co 43-42 Tenth Long Island City 1 N Y
Kay-Tite Co West Orange N J (344)
Koppers Co Inc Pittsburgh 19 Pa
Lehon Co 4425 S Oakley Av Chgo Ill
Lumino Co Inc 515 Madison Av NY NY
Minnesota Linseed Oil Paint Co Minneapolis Minn
Mixtite Corp North Haven Conn
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Pioneer Asphalt Corp 435 N Michigan Chgo Ill
Presstite Engineering Co St Louis 10 Mo
Prima Products Inc 10 E 40th St New York 16 NY (349)
Protection Products Mfg Co Kalamazoo Mich (68)
Rand-Williams Mfg Co Inc 377 Broadway New York 13 N Y
Ranetite Mfg Co 1917 S Broadway St Louis Mo (353)
Reilly Tar & Chemical Corp Indianapolis 4 Ind
Sealcon Products Inc Minneapolis 2 Minn
Servicized Products Corp 6051 W 65th St Chicago 38 Ill
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
Standard Dry Wall Products Inc New Eagle Pa
Steelcote Mfg Co 3418 Gratiot St Louis 3 Mo
The Sullivan Co P O Box 2606 Memphis 2 Tenn
The Texas Co 135 E 42nd NY NY (217)
Truscon Labs Detroit Mich
Vita-Var Corp Newark N J (508)
Weather Seal Co Cincinnati 2 Ohio

WATER SYSTEMS

Dayton Pump & Mfg Co Dayton O
Decatur Pump Co Decatur Ill
Delco Appliance Div General Motor Sales Corp Rochester N Y
The Deming Co Salem Ohio
Dempster Mill Mfg Co Beatrice Neb
Everite Pump & Mfg Co Inc Lancaster Pa
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Flint & Walling Mfg Co Inc Kendallville Ind
Goulds Pumps Inc Seneca Falls N Y
H D Hudson Mfg Co 589 E Illinois Chgo Ill (311)
Jacuzzi Bros Inc Berkeley 2 Cal
F E Myers & Bro Co Ashland O
Pioneer Gen-E-Motor Corporation 5841 W Dickens Chgo 39 Ill
Pomona Pump Co Pomona Calif
U S-Challenge Co Batavia Ill

WAX—floor

Armstrong Cork Co Lancaster Pa
Alabastine Paint Products Grand Rapids 9 Mich
American Crayon Co Sandusky Ohio
Baltimore Paint & Color Works Baltimore 23 Md
Berry Bros Inc Detroit 7 Mich
Boston Varnish Co Boston 49 Mass (178)
Boyle-Midway Inc 257 Cornelison Av Jersey City 2 NJ (182)
E L Bruce Co Memphis Tenn (207)
Cellowax Co Baltimore Md
Chemical Supply Co 225 Plymouth Bldg Cleveland 15 Ohio
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
E I DuPont de Nemours & Co Inc Wilmington 98 Del
Farwell Ozmun Kirk & Co St Paul 1 Minn
Forman Ford & Co Minneapolis 1 Minn
Franklin Research Co Philadelphia Pa
W P Fuller & Co 301 Mission San Fran 19 Cal
Gillespie Varnish Co Dey & Howell Sts Jersey City N J
Glidden Co Cleveland Ohio
R M Hollingshead Corp Camden N J
A C Horn Co 43-36 Tenth Long Island City 1 N Y
Howard Dustless Duster Co Boston 10 Mass
Lowe Bros Co Dayton Ohio
Martin-Senour Co 2520 S Quarry St Chicago 8 Ill
Minnesota Mining & Mfg Co St Paul 6 Minn
Minwax Co Inc 11 W 42nd NY NY
O-Cedar Corp 2246 W 49 Chgo Ill
The Paraffine Companies Inc 475 Brannan St San Francisco 19 Cal
Peaslee-Gaulbert Paint & Varnish Co Louisville Ky
Penetone Co Tenafly N J
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc 75 Tonawanda Buffalo 7 NY
Puritan Chemical Co Atlanta 3 Ga
Rogers Paint Products Inc Detroit 11 Mich
Seidlitz Paint & Varnish Co Kansas City 10 Mo
Simoniz Co 2100 S Indiana Av Chgo Ill
Socony-Vacuum Oil Co Inc 26 Broadway NY NY
L Sonneborn Sons Inc 88 Lexington Av NY 16 NY (182)
The Sullivan Co P O Box 2606 Memphis 2 Tenn
Vita-Var Corp Newark 2 N J (508)

WAX REMOVER—floor

Armstrong Cork Co Lancaster Pa
Cellowax Co 2114 N Charles St Baltimore Md
Devoe & Raynolds Co Inc 787 First Av New York 17 N Y
Franklin Research Co Philadelphia 31 Pa
Glidden Co Cleveland 2 Ohio
Pittsburgh Plate Glass Co Grant Bldg Pittsburgh 19 Pa (169)
Pratt & Lambert Inc Buffalo 7 N Y
The Savogran Co India Wharf Boston 10 Mass (170)
Vita-Var Corp Newark 2 N J (508)

WEATHERSTRIP

Accurate Metal Weatherstrip Co Inc 218 E 26th NY 10 NY
Allmetal Weatherstrip Co 229 W Ohio Chgo Ill
American Metal Weather Strip Co Grand Rapids Mich
Chicago Metallic Sash Co 2112 Ogden Av Chicago 12 Ill
W J Dennis & Co 1732 N Kolmar Av Chgo Ill
Dyke Bros Little Rock Ark (141)
The Handyman Co Minneapolis 3 Minn (French windows) (145)
Higgin Mfg Co Newport Ky
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Master Metal Strip Service Inc 1720 N Kilbourn Av Chgo Ill
Monarch Metal Weatherstrip Corp St Louis 14 Mo
Protex Weatherstrip Mfg Co 4500 S Western Chgo Ill
James H Rhodes & Co 157 W Hubbard St Chicago 10 Ill
The R O W Sales Co Royal Oak Mich (120)
Samson Products Co 4238 N Leavitt Av Chgo 18 Ill
The Security Co Detroit 3 Mich (111)
Window Devices Inc Des Moines 9 Ia
Zegers Inc 5615 Harper Av Chgo 37 Ill (143)

WEATHERSTRIP—door bottom

Columbia Industries 19th Av & 36th St Long Island City 5 N Y (507)
W J Dennis & Co 1732 N Kolmar Av Chicago 39 Ill
The Handyman Co Minneapolis 3 Minn (145)
Macklanburg-Duncan Co Oklahoma City 1 Okla (297)
Master Metal Strip Service Inc 1720 N Kilbourn Av Chicago 39 Ill
Monarch Metal Weatherstrip Corp St Louis 14 Mo
Samson Products Co 4238 N Leavitt Av Chgo 18 Ill
The Security Co Detroit 3 Mich (111)
Thermal Co Philadelphia 19 Pa
Window Devices Inc Des Moines 9 Ia

WEATHER VANES

J W Fiske Iron Works 78 Park Place New York 7 N Y

WEDGES—axe & hammer

Red Devil Tools Irvington 11 N J (288)

WHEELBARROWS

American Steel Scraper & Wheelbarrow Co Sidney Ohio
Boyle Mfg Co Los Angeles Cal
Chattanooga Wheelbarrow Co Chattanooga 2 Tenn
Jackson Mfg Co Harrisburg Pa
Lansing Co Lansing Mich
Seymour Mfg Co Inc Seymour Ind
Sterling Wheelbarrow Co Milwaukee Wis
Toledo Wheelbarrow Co Toledo Ohio
U S-Challenge Co Batavia Ill
Western Wheel Barrow Mfg Co South Fort Smith Ark

Number in parenthesis indicates page on which advertisement appears

WHEEL GUARDS

Adams Co Dubuque Ia
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
The Filer & Stowell Co Milwaukee 7 Wis
J W Fiske Iron Works 78 Park Place New York 7 N Y
Kentucky Metal Products Co Louisville 4 Ky
Majestic Co Huntington Ind (105)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Western Foundry Co Portland 1 Ore

WHEELS—sprocket

Brad Foote Gear Wks 1301 S Cicero Av Chgo Ill
Cullman Wheel Co 1352 Altgeld Chgo Ill
Dodge Mfg Corp Mishawaka Ind
The Filer & Stowell Co Milwaukee 7 Wis
Jeffrey Mfg Co Columbus O
Link-Belt Co 300 W Pershing Rd Chgo 9 Ill
Western Foundry Co Portland 1 Ore

WINCHES—tractor & truck

Four Wheel Drive Auto Co Clintonville Wis
Hyster Co Portland 8 Ore & Peoria 1 Ill
Isaacson Iron Wks Seattle Wash
The Oliver Corp Industrial Div 19300 Euclid Av Cleveland 17 Ohio
Silent Hoist & Crane Co 860 63rd Brooklyn 20 NY (402)
Stimmel Winch Co 37-24 33rd St Long Island City 1 N Y
Gar Wood Industries Inc Detroit 11 Mich

WINDMILLS

Baker Mfg Co Evansville Wis
Dempster Mill Mfg Co Beatrice Neb
Fairbanks Morse & Co 600 S Michigan Av Chgo Ill
Flint & Walling Mfg Co Inc Kendallville Ind
New England Tank & Tower Co Everett Mass
Stover Mfg & Engine Co Freeport Ill
U S-Challenge Co Batavia Ill

WINDOW FRAMES—wood

Anderson Corp Bayport Minn (122-123)
Bliss-Coleman Lbr Co Inc Omak Wash (141)
Bradley-Miller & Co Bay City Mich
Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co Memphis Tenn
Curtis Cos Inc Clinton Ia
Farley & Loetscher Mfg Co Dubuque Ia
Gregg & Son Nashua N H (125)
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
Ideal Co Box 889 Waco Tex
Keystone Frame & Mfg Co Spokane 3 Wash
Kinzua Pine Mills Co Kinzua Ore (31)
Long-Bell Lbr Co Kansas City Mo
Long Lake Lbr Co Spokane Wash
Malta Mfg Co Malta Ohio
Missoula White Pine Sash Co Missoula Mont
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Pacific Mutual Door Co Tacoma Wash
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Wks Rock Island Ill
Segelke & Kohlhaus Co La Crosse Wis
Geo Silbernagel & Sons Co Wausau Wis
George J Silbernagel 8 S Michigan Av Chgo 3 Ill
Frank C Snedaker & Co Inc Philadelphia 40 Pa
Spokane Pine Prod Co Spokane Wash
Trimpak Corp New Rochelle N Y
Western Pine Mfg Co Ltd Spokane 7 Wash (49)
Weyerhaeuser Sales Corp St Paul Minn 34-35
White Pine Sash Co Spokane Wash

WINDOW GUARDS

Adams Co Dubuque Ia
Cincinnati Iron Fence Co Inc Cincinnati 6 Ohio
Clay Equipment Corp Cedar Falls Iowa
P & F Corbin New Britain Conn
Cyclone Fence Div American Steel & Wire Co P O Box 260 Waukegan 1 Ill
The Edwards Mfg Co Cincinnati 2 Ohio
J W Fiske Iron Works 78 Park Place New York 7 N Y
Grand Rapids Wire Prod Co Grand Rapids Mich
Logan Co Inc Louisville 6 Ky
Mesker Bros 433 S 7th St Louis 2 Mo
Natl Brass Co Grand Rapids Mich
Ney Mfg Co Canton O
S Parker Hardware Mfg Co 27 Ludlow New York 2 N Y
Russell & Erwin Div The American Hardware Corp New Britain Conn
F P Smith Wire & Iron Wks 2346 N Clybourn Av Chgo Ill
Southern Wire & Iron Wks 441 Memorial Dr S E Atlanta Ga
Starline Inc Harvard Ill
Stewart Iron Wks Co Inc Cincinnati O
Sun Metal Products 221 N La Salle St Chicago Ill
A L Swett Iron Works Medina N Y
Wheeling Corrugating Co Wheeling W Va (357)

WINDOWS—aluminum

Aluminum Window Corp 34-19 10th Long Island City 1 N Y
William Bayley Co Springfield Ohio
Cupples Products Corp St Louis 17 Mo
Eagle-Picher Co Cincinnati 1 Ohio
Flour City Ornamental Iron Co Minneapolis Minn
Hope's Windows Inc Jamestown N Y
Lundell Eckberg Mfg Co Inc Jamestown N Y
Pennsylvania Wire Glass Co Philadelphia 3 Pa
Premier Metal Products Corp Phoenix Ariz
J S Thorn Co Philadelphia 32 Pa
Winco Ventilating Window Div Watco Engineering Inc Cleveland 13 Ohio

WINDOWS—awning, wood

Gate City Sash & Door Co Fort Lauderdale Fla (112-113)

WINDOWS—barn, steel

Louden Machinery Co Fairfield Iowa
Ney Mfg Co Canton 4 Ohio
Vento Steel Products Co Inc Buffalo 15 N Y

WINDOWS—combination

Baer-American Window Co 502 Erie Bldg Cleveland 15 Ohio
A W Barnhart Co Port Chester N Y
Detroit Steel Products Co Detroit 11 Mich
Eagle-Picher Co Cincinnati 1 Ohio
Hope's Windows Inc Jamestown N Y
Ingersoll Steel Div Borg Warner Corp 310 S Michigan Av Chgo 4 Ill
Marquart Millwork Co Oshkosh Wis (139)
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Northern Wood Products Co Detroit 26 Mich (106)
Phenix Mfg Co Inc Milwaukee 12 Wis
F C Russell Co Cleveland O
Seneca Lumber & Millwork Co Fostoria Ohio
Frank C. Snedaker & Co Inc Philadelphia 40 Pa
J S Thorn Co Philadelphia 32 Pa
Truscon Steel Co Youngstown 1 Ohio
Williamsburg Steel Products Co 86 Quay St Brooklyn 22 N Y
Wonder Window Co Fitchburg Mass (wood)

WINDOWS—doublehung, steel

A W Barnhart Co Port Chester N Y
Croft Steel Products Inc 370 Lexington Av New York 17 NY
International Fireproof Door Co Inc 157 Walworth St Brooklyn 5 N Y
James Mfg Co Fort Atkinson Wis
National Mirror Works Rockford Ill
S H Pomeroy Co Inc 25 Eastern Blvd NY NY
Republic Steel Corp Cleveland 1 Ohio
Soule Steel Co San Francisco 24 Cal
J S Thorn Co Philadelphia 32 Pa
Truscon Steel Co Youngstown Ohio
Williamsburg Steel Products Co 86 Quay St Brooklyn 22 N Y
Willis Steel Corp Galesburg Ill

WINDOWS—double hung, wood

Andersen Corp Bayport Minn (122-123)
Angel Novelty Co Fitchburg Mass
Anson & Gilkey Co Merrill Wis
Baer-American Window Co Venti/Kleen Div 502 Erie Bldg Cleveland 15 Ohio
Buffelen Lumber & Mfg Co Tacoma Wash
Carnanan Mfg Co Loogootee Ind
Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co Memphis Tenn
Curtis Companies Inc Clinton Ia
Dyke Bros Little Rock Ark (141)
Farley & Loetscher Mfg Co Dubuque Ia
Gregg & Son Nashua N H (125)
Hallack & Howard Lumber Co Denver 1 Colo
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
Ideal Co Box 889 Waco Tex
The Long-Bell Lumber Co Kansas City 6 Mo
Marquart Millwork Co Oshkosh Wis (139)
Missoula White Pine Sash Co Missoula Mont
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
N S W Co Detroit 7 Mich
National Screen Door Co Montgomery 3 Ala
Northwest Door & Plywood Sales Tacoma 1 Wash
Pacific Mutual Door Co Tacoma Wash
Ponderosa Pine Woodwork 111 W Washington St Chicago 2 Ill
J R Quigley Co Gloucester City N J
The Radford Co Oshkosh Wis
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Wks Rock Island Ill
The R O W Sales Co Royal Oak Mich (120)
Segelke & Kohlhaus Co La Crosse Wis
Geo Silbernagel & Sons Co Wausau Wis
Geo J Silbernagel 8 S Michigan Av Chicago 3 Ill
Frank C Snedaker & Co Inc Philadelphia 40 Pa
Western Pine Mfg Co Spokane Wash (49)
Weyerhaeuser Sales Co St Paul Minn (34-35)
White Pine Sash Co Spokane Wash

WINDOWS—pivoted & projected, steel

A W Barnhart Co Port Chester N Y
William Bayley Co Springfield Ohio
Ceco Steel Prod Corp 5701 W 26 Chgo Ill
Copco Steel & Engineering Co Detroit 27 Mich
Crittall-Federal Inc Waukesha Wis
Decatur Iron & Steel Co Decatur Ala
Detroit Steel Prod Co Detroit Mich
The Edwards Mfg Co Cincinnati 2 Ohio
Michael Flynn Mfg Co Philadelphia 24 Pa
Hope's Windows Inc Jamestown N Y
International Steel Co Evansville Ind
James Mfg Co Fort Atkinson Wis
Kewanee Mfg Co Kewanee Ill
Mesker Bros 4344 Geraldine St Louis 15 Mo (116-117)
Michel & Pfeffer Iron Wks Inc 1415 Harrison San Fran 3 Cal
Republic Steel Corp Cleveland 1 Ohio
Soule Steel Co San Francisco 24 Cal
J S Thorn Co Philadelphia 32 Pa
Truscon Steel Co Youngstown 1 O

WINDOWS—pivoted & projected, wood

Baer-American Window Co Venti/Kleen Div 502 Erie Bldg Cleveland 15 Ohio
Cole Mfg Co Box 2657 Memphs 2 Tenn
Hayman Window Co 1980 Broadway Denver 2 Colo (removable)
Geo J Silbernagel 8 S Michigan Av Chicago 3 Ill

WINDOWS—steel basement

Adams Co Dubuque Ia
A W Barnhart Co Port Chester N Y
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Clay Equipment Corp Cedar Falls Iowa
Copco Steel & Engineering Co Detroit 27 Mich
Crittall Federal Waukesha Wis
Decatur Iron & Steel Co Decatur Ala
Detroit Steel Prod Co Detroit Mich
The Donley Bros Co 13928 Miles Av Cleveland 5 Ohio (83-98)
Gabriel Steel Co Detroit 12 Mich
Hope's Windows Inc Jamestown N Y
Kewanee Mfg Co Kewanee Ill
Majestic Co Huntington Ind (105)
Geo L Mesker Steel Corp Evansville Ind
Michel & Pfeffer Iron Wks Inc San Francisco Cal
Milcor Steel Co 4027 W Burnham St Milwaukee 4 Wis (319)
National Mirror Works Rockford Ill
Republic Steel Corp Cleveland 1 Ohio
Soule Steel Co San Francisco 24 Cal
Starline Inc Harvard Ill
J S Thorn Co Philadelphia 32 Pa

Number in parenthesis indicates page on which advertisement appears

Truscon Steel Co Youngstown 1 O
Universal Fabricators 1801 Boone Av Bronx 60 N Y
Vento Steel Prod Co Inc Buffalo 15 NY

WINDOWS—steel casement

A W Barnhart Co Port Chester N Y
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Crittall-Federal Inc Waukesha Wis
Croft Steel Prod Inc 370 Lexington Av New York 17 NY
Decatur Iron & Steel Co Decatur Ala
Detroit Steel Prod Co Detroit Mich
Michael Flynn Mfg Co Philadelphia 24 Pa
Hope's Windows Inc Jamestown N Y
Louden Machinery Co Fairfield Iowa
Lundell-Eckberg Mfg Co Inc Jamestown N Y
Mesker Bros 433 S 7th St Louis 2 Mo (116-117)
Geo L Mesker Steel Corp Evansville Ind
Michel & Pfeffer Iron Wks Inc San Francisco Cal
National Mirror Works Rockford Ill
Republic Steel Corp Cleveland 1 Ohio
Soule Steel Co San Francisco 24 Cal
J S Thorn Co Philadelphia 32 Pa
Truscon Steel Co Youngstown 1 O

WINDOWS—steel, storm

Adams Co Dubuque Ia
A W Barnhart Co Port Chester N Y
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Hope's Windows Inc Jamestown N Y
Mesker Bros 4344 Geraldine St Louis 15 Mo (116-117)
Soule Steel Co San Francisco 24 Cal
Truscon Steel Co Youngstown 1 O

WINDOWS—wood, barn

Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co Box 2657 Memphis 2 Tenn
Farley & Loetscher Mfg Co Dubuque Ia
Ideal Co Box 889 Waco Texas
The Long-Bell Lumber Co Kansas City 6 Mo
Morgan Co Oshkosh Wis
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
National Screen Door Co Montgomery 3 Ala
Northwest Door & Plywood Sales Tacoma 1 Wash
The Radford Co Oshkosh Wis
Rock Island Sash & Door Wks Rock Island Ill
Segelke & Kohlhaus Co La Crosse Wis
Geo Silbernagel & Sons Co Wausau Wis
George J Silbernagel 8 S Michigan Av Chgo 3 Ill
Western Pine Mfg Co Ltd Spokane 7 Wash (49)

WINDOWS—wood basement

Andersen Corp Bayport Minn (122-123)
Anson & Gilkey Co Merrill Wis
Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Curtis Companies Inc Clinton Ia
Farley & Loetscher Mfg Co Dubuque Ia
Gregg & Son Nashua N H (125)
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
The Long-Bell Lumber Co Kansas City 6 Mo
Long Lake Lbr Co Spokane Wash
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Northwest Door & Plywood Sales Tacoma 1 Wash
Pacific Mutual Door Co Tacoma Wash
The Radford Co Oshkosh Wis
Roach & Musser Co Muscatine Ia
Rock Island Sash & Door Works Rock Island Ill
Segelke & Kohlhaus Co La Crosse Wis
George J Silbernagel 8 S Michigan Av Chgo 3 Ill
Western Pine Mfg Co Ltd Spokane 7 Wash (49)
Weyerhaeuser Sales Co St Paul Minn (34-35)

WINDOWS—wood casement

Andersen Corp Bayport Minn (122-123)
Angel Novelty Co Fitchburg Mass
Anson & Gilkey Co Merrill Wis
Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co P O Box 2657 Memphis 2 Tenn
Curtis Companies Inc Clinton Ia
Farley & Loetscher Mfg Co Dubuque Ia
Huttig Mfg Co Muscatine Ia
Ideal Co Box 889 Waco Tex
The Long-Bell Lumber Co Kansas City 6 Mo
Morgan Co Oshkosh Wis
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Northwest Door & Plywood Sales Tacoma 1 Wash
Pacific Mutual Door Co Tacoma Wash
J R Quigley Co Gloucester City N J
The Radford Co Oshkosh Wis
Rock Island Sash & Door Works Rock Island Ill
Roach & Musser Co Muscatine Ia
Segelke & Kohlhaus Co La Crosse Wis
Geo Silbernagel & Sons Co Wausau Wis
George J Silbernagel 8 S Michigan Av Chgo 3 Ill
Western Pine Mfg Co Ltd Spokane 7 Wash (49)
Weyerhaeuser Sales Co St Paul Minn (34-35)
White Pine Sash Co Spokane Wash

WINDOWS—wood, horizontal acting

Andersen Corp Bayport Minn (122-123)
Anson & Gilkey Co Merrill Wis
Cole Mfg Co Box 2657 Memphis 2 Tenn
Morgan Co Oshkosh Wis
Northwest Door & Plywood Sales Tacoma 1 Wash
Geo Silbernagel & Sons Co Wausau Wis
George J Silbernagel 8 S Michigan Av Chgo 3 Ill
Western Pine Mfg Co Ltd Spokane 7 Wash (49)

WINDOWS—wood, storm

Angel Novelty Co Fitchburg Mass
Anson & Gilkey Co Merrill Wis
Baer-American Window Co Venti/Kleen Div 502 Erie Bldg Cleveland 15 Ohio
A W Barnhart Co Port Chester N Y
Carr Adams & Collier Co Dubuque Ia (131)
Cole Mfg Co Box 2657 Memphis 2 Tenn
Curtis Companies Inc Clinton Ia
Farley & Loetscher Mfg Co Dubuque Ia
Gregg and Son Nashua N H (125)
Hallack & Howard Lumber Co Denver 1 Colo
Huttig Mfg Co Muscatine Ia
Huttig Sash & Door Co St Louis Mo
The Long-Bell Lumber Co Kansas City 6 Mo
Missoula White Pine Sash Co Missoula Mont
Morgan Co Oshkosh Wis
Morgan Sash & Door Co 2287 S Blue Island Av Chicago 8 Ill
Northern Wood Products Co Detroit 26 Mich (106)
Pacific Mutual Door Co Tacoma Wash
The Radford Co Oshkosh Wis
Rock Island Sash & Door Works Rock Island Ill
Royal Glass Works Corp 50-20 25th Long Island City 1 N Y
Segelke & Kohlhaus Co La Crosse Wis
Geo Silbernagel & Sons Co Wausau Wis
George J Silbernagel 8 S Michigan Av Chgo 3 Ill
U S-Challenge Co Batavia Ill
Western Pine Mfg Co Ltd Spokane 7 Wash (49)

WIRE—barbed

American Chain Link Fence Co Medford Mass
Amer Steel & Wire Co Cleveland 13 O (309)
Bethlehem Steel Co Bethlehem Pa
Ceco Steel Products Corp 5701 W 26th Chgo 50 Ill
Century Fence Co Waukesha Wis
Colorado Fuel & Iron Corp Denver 1 Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Copperweld Steel Co Glassport Pa
Jones & Laughlin Corp Pittsburgh Pa
Keystone Steel & Wire Co Peoria Ill
Nichols Wire & Steel Co Davenport Iowa (steel & aluminum) (219)
Mid States Steel & Wire Co Crawfordsville Ind
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh 30 Pa
Republic Steel Corp Cleveland 1 Ohio
Sheffield Steel Corp Kansas City Mo
Wheeling Steel Corp Wheeling W Va (357)

WIRE—galvanized steel

Acme Staple Co Camden N J
American Chain Link Fence Co Medford Mass
American Steel & Wire Co Cleveland 0 (309)
Bethlehem Steel Co Bethlehem Pa
Century Fence Co Waukesha Wis
Colorado Fuel & Iron Corp Denver 1 Colo
Columbia Steel Co Russ Bldg San Fran 6 Cal (309)
Continental Steel Corp Kokomo Ind (313)
Goldsmith Metal Lath Co Cincinnati 32 Ohio
Johnson Steel & Wire Co Inc Worcester Mass
Jones & Laughlin Steel Corp Pittsburgh Pa
Keystone Steel & Wire Co Peoria Ill
Laclede Steel Co St Louis 1 Mo
Mid-States Steel & Wire Co Crawfordsville Ind
Nichols Wire & Steel Co Davenport Iowa (also aluminum) (219)
Northwestern Steel & Wire Co Sterling Ill
Pittsburgh Steel Co Pittsburgh Pa
Republic Steel Corp Cleveland 1 Ohio
John A. Roebling's Sons Co Trenton N J
Seneca Wire & Mfg Co Fostoria O (302)
Sheffield Steel Corp Kansas City Mo
Soule Steel Co San Francisco 24 Cal
Wheeling Steel Corp Wheeling W Va (357)
Wickwire Spencer Steel A Div of The Colorado Fuel & Iron Corp 500 Fifth Av New York 18 NY
Youngstown Steel Products Co Youngstown O (102)

WIRE PULLERS & STRETCHERS

American Steel & Wire Co Cleveland 13 Ohio (309)
Bethlehem Steel Co Bethlehem Pa
Century Fence Co Waukesha Wis
Continental Steel Corp Kokomo Ind (313)
Keystone Steel & Wire Co Peoria Ill
Mason Fence Co Leesburg Ohio
Mid-States Steel & Wire Co Crawfordsville Ind
Ney Mfg Co Canton Ohio
Starline Inc Harvard Ill

WOOD—balsa

Balsa Ecuador Lbr Corp 500 5th Av NY NY
C-W Plywood Co 9 S Clinton Chgo Ill
F C Luthi & Co Balter Bldg New Orleans 12 La

WOOD—compregnated

Farley & Loetscher Mfg Co Dubuque Iowa
Parkwood Corp Wakefield Mass

WRENCHES

Crescent Tool Co Jamestown N Y
Fairmount Tool & Forging Co Cleveland 6 Ohio
Heller Brothers Co Newark 4 N J
Owatonna Tool Co Owatonna Minn (automative)
P & C Hand Forged Tool Co Portland 2 Ore
Walworth Co 60 E 42nd New York 17 N Y (Pipe)

Number in parenthesis indicates page on which advertisement appears

Northeastern Lumber, Specialties and Other Items

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	W—North. White Pine N—Norway Pine	Eastern Hemlock	Eastern Spruce	Ash	Basswood	Beech	Birch	Cherry	Maple	Oak	Y—Yard & Shed Stock S—Softwood Flooring	D—Dimension T—Softwood Timbers	S—Bevel Siding H—Hardwood Flooring	A—Air Dried Rgh. Dimension K—K.D. Rgh. Dimension	F—Finished Dimension S—Semi-Finished Dimension	H—Hardwood Timbers V—Vehicle & Wagon Stock	B—Box Shook C—Crating	Other
MAINE																				
Augusta Lbr. Co., Augusta	MW		W	X	X														B	P
J. G. Deering & Son, Biddeford	M		W	X	X							X								P
M. S. Hancock, Inc., Casco	M		WN	X								X								
Timberlands Inc., Dixfield	M		WN																	
MASSACHUSETTS																				
Atlantic Lbr. Co., Boston	MW	50				X	X	X	X	X	X	X						V		O
Chaffee Bros. Co., Oxford	M		WN	X		X	X	X	X		X	X							BC	
Fessenden Companies, Inc., Townsend	M		W									X								
H. A. Stiles & Co., Boston 14	M																			S
NEW HAMPSHIRE																				
Johnson Lbr. Co., Inc., Manchester	MW	15	W				X	X	X		X	X							B	
The Kennett Co., Conway	M		WN	X					X			X				A				P
Langdell Lbr. Co., Milford	M		W	X																
John R. Mathes & Sons, Inc., Dover	M		WN	X										DT					BC	
NEW YORK																				
Adirondack Core & Plug Co., Carthage	W		W	X	X	X	X	X	X	X	X	X		T						
The Blount Lbr. Co., Lacona	M					X		X	X	X	X				H					
H. M. Booher, Nedrow	MW			X	X	X	X	X	X	X	X	X	Y			AK		H		P
Cotton & Hanlon, Odessa	MW	30	W	X	X	X	X	X	X	X	X	X	Y	D	H	AK	F	HV	C	△
Geo. E. Cressy & Sons, Utica, N. Y.	MW		W	X	X	X			X											P
Cross, Austin & Ireland Lbr. Co., Brooklyn 6—See adv. p. 74	W		WN										YS	DT	SH					O
Elliott Hardwood Co., Potsdam	M	5						X	X	X	X									
Emporium Forestry Co., Conifer	M		W	X	X		X	X	X	X	X		YS	T	H	AK	S	H		
Farrell Lbr. Co., Poland	M			X	X	X	X	X	X	X	X									
Fordom Forest Prods. Corp., New York 17—See adv. p. 40																				I
Greene Lbr. Co., Greene	M		W	X		X	X	X			X	X				A				P
R. T. Jones Lbr. Co., N. Tonawanda	MW	35	WN	X	X								YS	DT	S	A			BC	O
A. Mason & Sons, Inc., Peru	M		WN		X				X	X	X	X	YS	DT		AK	F		B	
J. H. Monteath Co., New York 51	MW			X		X	X	X	X	X	X	X	YS							O
Oval Wood Dish Corp., Tupper Lake	M	25						X	X		X				H					
Plunkett-Webster Lbr. Co. Inc., New Rochelle	MW	15	W	X	X	X	X	X	X	X	X	X	Y	DT	SH	AK	FS	HV	BC	O
Warren Ross Lbr. Co., Falconer, N. Y.	W	5				X	X	X	X	X	X	X						HV		
Treat-Nantke Co. Inc., No. Tonawanda	M*	10	W		X								Y		S					△
Ernst Seidelmann, Woolworth Bldg., N. Y. 7	W																			
PENNSYLVANIA																				
Babcock Lbr. Co., Pittsburgh 19—See adv. p. 73	MW	40	W	X			X	X	X		X	X	YS	DT	SH			H	BC	
Cooper-Smith Lbr. Co., Wilkes-Barre	MW	5	W	X		X	X	X	X	X	X	X		T		A				
Everett Hardwood Lbr. Co., Everett	MW	30	W	X	X	X	X	X	X	X	X	X	Y	DT	SH	AK		H	C	O
Gray Chemical Co., Roulette	M							X	X	X	X									
Fisher & Young, Titusville	MW	5	W	X		X	X	X		X	X	X	Y			A	F	H		P

*—Custom Mfrs.
O—Other Woods

P—Poles and Piling
△—Mahogany

1—Importers of Foreign Woods
S—Wood Plugs, Rollers, Turnings, Knobs

Northeastern Lumber, Specialties and Other Items

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	W—North. White Pine N—Norway Pine	Eastern Hemlock	Eastern Spruce	Ash	Basswood	Beech	Birch	Cherry	Maple	Oak	Y—Yard & Shed Stock S—Softwood Flooring	D—Dimension T—Softwood Timbers	S—Bevel Siding H—Hardwood Flooring	A—Air Dried Rgh. Dimension K—K.D. Rgh. Dimension	F—Finished Dimension S—Semi-Finished Dimension	H—Hardwood Timbers V—Vehicle & Wagon Stock	B—Box Shook C—Crating	Other
PENNSYLVANIA—Continued																				
Endeavor Lbr. Co., Endeavor	M	5	W	X		X	X	X	X	X	X	X	Y	DT		A	F	H		
Wm. Schuette Co., Pittsburgh—See adv. p. 79	W		W																	O
VERMONT																				
C. E. & F. O. Burt Co., Stowe	M		W	X	X				X		X									
Holden & Martin Lbr. Co., Brattleboro	M		W	X	X							X								
Parker & Stearns, Johnson	M			X	X		X	X	X		X				H					
Plant & Griffith Lbr. Co., Jonesville	MW		W	X	X		X	X	X		X	X				A				
Ward Lbr. Co., Moretown	M		W	X				X	X		X	X								

O—Other Woods

Appalachian Hardwood Lumber, Specialties and Other Items

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	A—Ash B—Basswood	X—Beech B—Birch	C—Cherry Y—Chestnut	Z—Hickory H—Hard Maple	S—Soft Maple O—Red & White Oak	P—Poplar S—Sycamore	W—Walnut	A—A.D. Rough Dimension K—K.D. Rough Dimension	F—Finished Dimension S—Semi-Finished Dimension	G—Glued Up Dimension I—Interior Trim & Moulding	T—Thresholds, Treads, Risers W—Wall Paneling	C—Construction Boards T—Timbers	Vehicle & Wagon Stock	C—Crating Stock B—Banding Stock	Appalachian White Pine	S—Appalachian Spruce H—Appalachian Hemlock	P—Southern Pine H—Hardwood Flooring	Other
Anchor Lbr. Co., Parkersburg, W. Va.	MW	10	AB	XB	CY	ZH	SO	PS	W	AK		GI	T	T		CB	X	SH	H	
Atlanta Oak Flg. Co., Atlanta 1, Ga.	MW		AB	XB	CY	ZH	SO	PS	W	AK	FS	GI	TW	CT	X	C	X	H	H	O
Atlantic Lbr. Co., 88 Broad St., Boston	MW	50	AB	XB	CY	ZH	SO	PS	W					T	X	B			P	
Babcock Lbr. Co., Pittsburgh 19—See adv. p. 73	MW	40		XB	Y	H	O	PS		A	FS		T	CT		C	X	SH	PH	
L. N. Bagnal, P. O. Box 2896, Winston-Salem, N. C.—See p. 44	W		AB	XB	Y	ZH	SO	PS	W	AK	FS	GI				C			P	O
J. B. Belcher, Box 8, Bluefield, W. Va.—See adv. p. 32	MW	15	AB	XB	CY	ZH	SO	P	W					T		B				
Bristol Door & Lbr. Co., Bristol, Va.	M	6	AB	X	Y	H	SO	P				GI	T							
D. D. Brown, Elkins, W. Va.—See adv. p. 32	MW		AB	XB	CY	ZH	SO	P	W	AK				CT	X	C		H	H	
Carr Lbr. Co., Pisgah Forest, N. C.	M	8			Y		SO	P				I					X		H	2
Cherry River Boom & Lbr. Co., Richwood, W. Va.—See p. 32	MW	25	AB	XB	CY	H	SO	P		AK	FS	GI	TW	CT						
Christian Lbr. Co., Monticello, Ky.—See adv. p. 32	MW																			
Conasauga River Lbr. Co., Conasauga, Tenn.	M	16	AB	XB			SO	P		A	F			CT	X	C	X	H	P	
M. E. Crisp Lbr. Co., Welch, W. Va.—See adv. p. 32	M		AB	XB	CY	ZH	SO	P	W											3
Elk River Coal & Lbr. Co., Swandale, W. Va.	M	7	AB	X		ZH	SO	P	W	A	S			T	X			H		3
Ely-Thomas Lbr. Co., Camden-on-Gauley, W. Va.	M	12																		
J. M. English Sons' Co., Asheville, N. C.	MW																			
M. B. Farrin Lbr. Co., Cincinnati, O.—See adv. p. 32	MW		AB	XB	Y	ZH	O	P			FS	GI	TW						H	
Gennett Lbr. Co., Asheville, N. C.	M	18	AB	XB	CY	H	SO	P	W						X		X	H	H	
Georgia Hdwd. Lbr. Co., Augusta, Ga.—See adv. p. 16	MW	250	AB	XB	CY	ZH	SO	PS	W	AK			W	CT	X				PH	

2—Plastering Lath 3—Black Gum O—Red & Sap Gum, Mahogany and Soft-woods

Appalachian Hardwood Lumber, Specialties and Other Items

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	A—Ash B—Basswood	X—Beech B—Birch	C—Cherry Y—Chestnut	Z—Hickory H—Hard Maple	S—Soft Maple O—Red & White Oak	P—Poplar S—Sycamore	W—Walnut	A—A.D. Rough Dimension K—K.D. Rough Dimension	F—Finished Dimension S—Semi-Finished Dimension	G—Glued Up Dimension I—Interior Trim & Moulding	T—Thresholds, Treads, Risers W—Wall Paneling	C—Construction Boards T—Timbers	Vehicle & Wagon Stock	C—Crating Stock B—Bending Stock	Appalachian White Pine	S—Appalachian Spruce H—Appalachian Hemlock	P—Southern Pine H—Hardwood Flooring	Other
Griffith Lbr. Co., Huntington, W. Va.	MW	7	AB	XB	C	ZH	SO	P	W					T		B				
Grissom-Rakestraw Lbr. Co., Burnside, Ky.	MW																			
J. P. Hamer Lbr. Co., Kenova, W. Va.—See adv. p. 32	MW	5	AB			H	O	P						T		B				
Hart-Thompson Lbr. Co., Barbourville, Ky.	M	2	AB	X	Y	ZH	SO	PS	W	A					X	CB				8Z
Huntington Hardwood Co., Huntington, W. Va.	M	5	B		C	H	O	P	W											
Hutton & Bourbonnais Co., Hickory, N. C.—See adv. p. 32	M	15			Y		O	P								C	X			
Inter-Mountain Coal & Lbr. Co., Elkins, W. Va.	M	5	AB	XB	C	ZH	SO	P	W											
Kitchen Lbr. Co., Ashland, Ky.	M		AB	X		ZH	S	P	W											3
Marshall Lbr. Co., Marion, N. C.—See adv. p. 32	MW	15	AB	XB	CY	H	SO	P	W						X		X	H		1
McCracken & McCall Inc., Lexington 9, Ky.—See adv. p. 32	MW	5	AB	X		ZH	SO	P	W					CT	X	C		H		4
Meadow River Lbr. Co., Rainelle, W. Va.—See adv. p. 32	M	25	AB	XB	CY	ZH	SO	P		AK	FS	GI	T	T		B			H	6
Miller Bros. Co., Johnson City, Tenn.	M	25		XB		H	O				FS	GI	T						H	6
T. W. Minton & Co., Barbourville, Ky.	MW	5	AB	X		ZH	SO	P	W	AK	S	I		T	X	B			H	7
Morrison, Gross & Co., Erwin, W. Va.—See adv. p. 32	M	6	AB	XB	C	H	SO	P	W											
Mountain Fork Lbr. Co., Bluefield, W. Va.	M																			
Mowbray & Robinson Lbr. Co., Cincinnati, O.—See adv. p. 32	M		AB	XB	CY	ZH	SO	P	W	A				T	X	CB				
The Mower Lbr. Co., Charleston 28, W. Va.—See adv. pp. 32-66	MW	40	AB	XB	C	ZH	SO	P	W					T	X	C		SH	H	
J. Natwick & Co., Baltimore 2, Md.	MW		AB	X	Y	H	SO	P						T					H	
Oakboro Lbr. Co., Lenoir, N. C.	M	10			Y		O	P									X	H	P	
P. W. Plumly Lbr. Corp., Winchester, Va.—See adv. p. 32	M		AB	XB	C	Z	SO	P		AK		I	TW	T		B	X		PH	
Poinsett Lbr. & Mfg. Co., Pickens, S. C.	MW	12	AB	XB	CY	Z	SO	PS	W	AK	FS	GI	TW	T	X	CB	X	H	P	8
W. M. Ritter Lbr. Co., Columbus, O.—See adv. p. 32	M	50	AB	XB	CY	ZH	SO	P	W	AK			T	T	X	CB	X	H	P	9
D. M. Rose & Co., Knoxville 4, Tenn.	M	5	AB	X	CY	ZH	SO	P	W	AK	S	GI	T	T	X				H	
Schilling Lbr. Co., Parkersburg, W. Va.	MW			X		Z	O	P	W	A				T		B				
Wm. C. Schreiber Lbr. Co., Chicago 16, Ill.	W		AB	XB	CY	ZH	SO	P	W	AK					X				PH	
Stearns Coal & Lbr. Co., Stearns, Ky.—See adv. p. 32	M	15	AB	XB	Y	H	SO	P		A							X	H	P	
Stimson Lbr. Co., Owensboro, Ky.	M	12	AB	X		ZH	SO	PS	W					T				H		
Stuart Lbr. Corp., Stuart 10, Va.	M	10	A	XB	C		SO	PS	W			I	TW						PH	6
Thompson Mahogany Co, Philadelphia 36, Pa.	M						O	P	W											TM
Vestal Lbr. & Mfg. Co., Knoxville, Tenn.—See adv. p. 32	M	40	AB	XB	CY	ZH	SO	PS	W	AK				T		CB	X	H	P	
Viall Lbr. Co., Barbourville, Ky.	M																			
Webster Hardwood Lbr. Co., Dixie, W. Va.	M																			
West Virginia Lbr. Co., Elkin, W. Va.	MW	6	AB	XB	CY	ZH	SO	P		A				T		C		SH	H	
Williams-Brownell Planing Mill Co., Asheville, N. C.	MW																			
Wood-Mosaic Co., Inc., Louisville 9, Ky.—See adv. p. 32	MW	20	AB	XB	C	ZH	SO	PS	W					T	X	CB			H	
Wright-Bachman Lbr. Co., Forest City, N. C.	MW																			
J. Walter Wright Lbr. Co., Bristol, Tenn.	MW	15	AB	XB		ZH	SO	PS	W	A		G				C				
Zickgraf Hardwood Co., Franklin, N. C.	M	7					O				FS	I	W				X		PH	

1—Black Gum and Buckeye
3—Black Gum
4—Black Gum, Buckeye, Poplar Bevel Siding
5—Poplar Bevel Siding
6—Aromatic Red Cedar
7—Poplar Bevel Siding 1S2S, Factory Lumber, Furniture Squares, Broom Handles, Ladder Rungs, Wood Turnings
8—Hardwood Factory Lumber, Furniture Squares
9—Poplar Bevel Siding, Furniture Squares, Black Gum, Buckeye
Z—Butternut
TM—Furnish Veneers of practically all Species—Main Lumber Product Mahogany

Northern Hardwood, White Pine, Hemlock and Spruce Lumber and Specialties

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	W—Northern White Pine N—Norway Pine	H—Northern Hemlock S—Northern Spruce	A—Ash B—Basswood	B—Birch. X—Beech	X—Chestnut. C—Cherry	S—Soft Elm. R—Rock Elm	H—Hard Maple S—Soft Maple	Y—Yard & Shed Stock L—Lath	D—Dimension T—Timbers	S—Bevel Siding H—Hardwood Flooring	W—White Cedar Shingles L—Log Cabin Siding	F—Factory Lumber I—Industrial Cut Stock	A—Air Dried Rgh. Dimension K—K.D. Rgh. Dimension	F—Finished Dimension S—Semi-Fin. Dimension	G—Glued-up Dimension B—Bending Stock	H—Hardwood Timbers V—Veneer. P—Plywood	B—Construction Boards S—Box Shook. C—Crating	Other
Chas. H. Barnaby, Greencastle, Ind.	M	5			AB	X	C	S	HS						A		B			O
Bay De Noquet Co., Chicago 4, Ill.	M	22	W	HS		XB			HS	YL	D			FI	AK	FS	G	HV		
Paul B. Berry, Grand Rapids 6, Mich.—See adv. p. 79	W				AB	XB	XC	RS	HS						A		G	H	B	O
Boehm-Madisen Lbr. Co., Milwaukee 3, Wis.	M				AB	B		RS	HS			H		FI	AK					
Bonifas-Gorman Lbr. Co., Chicago	M	15	W	HS	AB	B		S	HS	Y										
Wm. Bonifas Lbr. Co., Neenah, Wis.	M	20	W	HS	AB	B		S	HS				L							O
Bowler Lbr. Co., Bowler, Wis.	MW	3	W	H	AB	XB	C	RS	HS	Y										3
Cadillac-Soo Lbr. Co., Sault Ste. Marie, Mich.	M	15	W	HS	AB	XB		S	HS	YL				F						
C. M. Christiansen Co., Phelps, Wis.	M		W	HS	AB	B		S	HS	Y			L							O
Clark Dickerson Lbr. Co., Reed City, Mich.	MW		W	H	AB	XB		RS	HS											
Cleveland Cliffs Iron Co., Negaunee, Mich.																				WP
Connor Lbr. & Land Co., Marshfield, Wis.—See adv. p. 11	M	50	W	HS	AB	B		RS	HS	Y	D	SH	WL	F	AK	FS	G			★6
Copeland Lbr. Co., Chicago, Ill.	MW	42	W	H	AB	XB	C	S	HS										C	△
John E. Fink Lbr. Co., Cable, Wis.	M		WN	H	AB	B		S	H	Y	DT	S		FI	A	F			BC	
Abbott Fox Lbr. Co., Iron Mountain, Mich.	M	16	W	H	AB	B		RS	HS	Y			L	F						
Fry-Fulton Lbr. Co., St. Louis 4, Mo.	W		W			B			H											
Gillies Bros., Braeside, Ont., Canada.—See adv. p. 79	M	30	W							Y	D			F						
Goodman Lbr. Co., Goodman, Wis.	MW	18	W	HS	AB	XB		RS	HS	YL	D	S	L	FI	AK	FS	B	HV	SC	
John Hawley, Ontonagon, Mich.	MW		W	H	AB	B		S	HS	Y			L		A				B	E
Holt Hardwood Co., Oconto, Wis.—See adv. p. 208	W				B	XB		S	HS	Y		H								•O
Jauquet Lbr. Co., Newald, Wis.	M	4	W	H	AB	B		RS	HS					F	A				BC	
Knoke Lbr. Co., Appleton, Wis.	MW	4	W	H	AB	XB	C	RS	HS	Y	T			F					BC	4★
Knudson & Mercer Lbr. Co., Chicago 4—See adv. p. 79	W		W	H						Y	DT									O
Menominee Indian Mills, Neopit, Wis.—See adv. p. 57	M	22	W	H	AB	XB		RS	HS											O
Menzner Lbr. & Supply Co., Marathon, Wis.	MW	2	W	H	AB	B		RS	HS											
Michigan Dimension Co., Manistique, Mich.	M														K	FS	G			
Michigan Pole & Tie Co., Newberry, Mich.	M	10	WN	HS		XB			HS		T	S		F				H	BC	★
Michigan Maple Block Co., Petoskey, Mich.	MW	8	WN	HS	AB	XB			S	HS			S	WL	FI	AK	S		C	
Frank Paxton Lbr. Co., Kansas City 3, Kas.—See adv. p. 66	W				AB	XB	XC		S	HS			H		FI					O
Rainy Lake Lbr. Co., Ltd., Chicago 2, Ill.—See adv. p. 61	MW		WN	S						YL	D	S	L	F						
Rib Lake Lbr. Co., Rib Lake, Wis.	MW	40	W	HS	AB	B		RS	HS	Y										O
Robbins Flooring Co., Rhinelander, Wis.	M											H								
Roddis Lbr. & Veneer Co., Marshfield, Wis.	MW	40	W	HS	AB	B		RS	HS	YL	T	SH	WL	F				P	C	†
Underwood Veneer Co., Bessemer, Mich.	M		W		AB	B		S	H	Y								VP		
M. J. Wallrich Land & Lbr. Co., Shawano, Wis.	MW	5	WN	HS	AB	XB	X	RS	HS	YL	DT	S	L	F					C	5
White River Timber Co., Bergland, Mich.	M		W	HS	AB	B		S	HS		DT								B	
Yawkey-Bissell Corp., White Lake, Wis.	M	40	W	H	AB	B		RS	HS	Y	DT	H			AK					

•—Graded Hardwood Sawdust
★—Cedar Poles, Ties, Posts
□ Hardwood Squares

†—Hdwd. Ven'nd Doors
△—Vehicle & Wagon Stock
E—Ties and Logs and Graded Hardwood Sawdust

O—Other Woods TL—Ties and Logs
3—Red Oak
WP—Wood Products to Customers' Pattern

4—Cottonwood, Hickory, Butternut
5—Red & White Oak, Yellow Poplar
6—Graded Hardwood Sawdust, Hardwood Squares

Southern Hardwood Lumber, Specialties and Other Items

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	A—Ash B—Basswood	X—Beech. C—Cherry	Y—Cottonwood. E—Elm	G—Red & Sap Gum B—Black Gum	T—Tupelo H—Hickory	M—Magnolia S—Soft Maple	O—Red & White Oak P—Pecan	X—Poplar S—Sycamore	W—Walnut L—Willow	A—A.D. Rough Dimension K—K.D. Rough Dimension	F—Finished Dimension S—Semi-Finished Dimension	G—Glued-up Dimension I—Interior Trim & Mouldings	T—Thresholds, Treads, Risers W—Wall Paneling	C—Construction Boards T—Timbers	V—Vehicle & Wagon Stock C—Crating	P—Southern Pine C—Cypress	R—Red Cedar W—White Cedar	Other
ALABAMA																				
S. B. Adams Lbr. Co., Inc., Box 345, Mobile	M	12	AB	X	YE	GB	TH	MS	O	XS	W					CT	VC	C		#
Cathey Lumber Co., Montgomery	M	18	AB	X	YE	GB	TH	MS	OP	XS						CT		PS		#
Clarke County Lbr. Co., Thomasville—See adv. p. 74	W		AB	X	YE	GB	T	MS	OP	XS		AK	S	GI	T	CT	C	P		
Fisher Bros. Lbr. Co., Tuscaloosa	M	9		X	E	GB	TH	S	OP							CT		PC		△
Hallett Mfg. Co., Inc., Mobile 2	M	8	A	X	YE	GB	TH	MS	OP	XS	L	AK	F	I	T	CT	V	PC		#
Kentwood Lumber Corp., Birmingham—See adv. p. 54	W					GB			O	X						CT	C	P		*
Miller & Co., Inc., Selma	M	36	AB	X	YE	GB	TH	MS	O	XS	W	A				T	VC	PC		#
Mobile River Sawmill Co., Mt. Vernon	M	20	A		Y	GB	T	M	O	P						CT	C	C		△#
Pine Plume Lbr. Co., Montgomery 1—See adv. pp. 16-65	MW	40	A	X	YE	GB	TH	MS	O	XS						C	C	P		
Scotch Lbr. Co., Fulton—See adv. p. 69	M	25	A	X	Y	G	H	M	O	X		AK	F			T		P		
Sears Lbr. Co., Mobile	M		A	X	YE	GB	T	M	O	X						T				
Smith Lbr. Co., Red Bay	M	25	A	X	E	GB	TH	S	O	XS		A	F			CT	C	PC	R	*●
W. C. Smith Lbr. Co., Montgomery 3	W		B		YE	GB	TH	MS	O	XS	L	A				CT		P		
W. T. Smith Lbr. Co., Chapman	M	60	AB	XC	YE	GB	TH	MS	OP	XS	L		S			T	C	PC		★
Stutts Lbr. Co., Inc., Thomasville—See adv. p. 50	M	22	AB	XC	YE	GB	TH	MS	OP	XS	WL	AK	FS			T	C	PC		
Stutts Sawmill Co., Inc., Thomasville—See adv. p. 50	M	18	AB	XC	YE	GB	TH	MS	OP	XS	WL	AK	FS			T	C	PC		
Vredenburg Saw Mill Co., Vredenburg	M	15	A		Y	GB	T	M	O	XS						T		PC		
J. W. Wells Lbr. Co., Montgomery 1—See adv. p. 74	M	100	AB	X	YE	GB	TH	MS	OP	XS						CT		PC		†
Williams & Voris Saw Mill Co., Birmingham	M	6	AB	X	E	GB	T	S	O	XS						CT	VC	P		*△
Youngerman-Reynolds Lbr. Co., Montgomery	MW		A	X	YE	GB	T		O	X						CT	C	PC		
ARKANSAS																				
J. W. Black Lbr. Co., Corning	M	5	A		YE	GB	TH	S	O							CT	V			*#
Bradley Lbr. Co. of Ark., Warren—See adv. p. 211	M	50		X	E	GB	H		OP	S			S	GI	TW	CT	C	PC		
Breece-White Mfg. Co., Eudora	M	8	A		YE	G		S	OP	S	L					T		C		
Crossett Lbr. Co., Crossett	M	48	A	X	E	GB			OP	S		AK		I	TW	CT	VC	PC		#
Dacus Lbr. Co., West Memphis	M	8	A		YE	GB	TH	S	OF	S	L					T		C		
F. T. Dooley Lbr. Co., Brinkley	M	8	A		YE	GB		S	O	S						T		C		
Fordyce Lbr. Co., Fordyce	M	24	AB	XC	E	GB	H	S	O	S		AK	FS	I	TW	CT	VC	PC		#
Keystone Lbr. Co., Camden	M	14				GB			O							T		P		
McLean-Arkansas Lbr. Co., Little Rock	M	8	A		YE	GB	TH		OP	S	L	K				T		C		
Northern Ohio Co., Parkin	M	6	A		YE	GB	T	S	OP	S						T		C		
Ozan Lbr. Co., Prescott—See adv. p. 50	M	25	A		E	GB	TH		OP	S	L	K				CT		C		
Reynolds-Gammill Lbr. Co., El Dorado	M	30	A	X	E	GB	T		O							CT	C	PC		•
Carlton Smith, Bearden	M												S	G						
Southern Lbr. Co., Warren	M	20		X		G	H		O			K	F	I	TW	CT	C	PC		
Sparkman Hardwood Lbr. Co., Sparkman	M	8	AB	X	E	GB			O	S						CT	C	C		RT
Townsend Bros., Stuttgart	M	14			YE	G			OP	S	L					T				
Wheeler Lbr. Co., Pine Bluff	M	7	A	X	YE	GB	T	S	O	S						T		C		
J. L. Williams & Sons, Sheridan	M	12				GB	TH		O							CT	V	P		●
Williams Mfg. Co., Sheridan	MW	25				GB	T		O	S			S			T	V	P		I
W. R. Wrape Stave Co., Little Rock	M	30				GB	T		OP			AK	FS	GI	TW					
DISTRICT OF COLUMBIA																				
Hardwood Corp. of America, Washington	W		A	X		GB	T	S	O	X		AK	FS	GI	TW					
Paul B. Kern Lbr. Co., Washington	W		AB	X		GB	T	S	O	X			F	I	TW			PC		

‡—Bending Stock
△—Poplar Aircraft Stock

★—Birch
*—Car Material

†—Veneer
RT—R. R. Ties, Mine Ties

●—2x4 & Wdr. R/L Gr. Dimension, Car Material, and Ties
I—4/4 K. D. Gum SzS

Southern Hardwood Lumber, Specialties and Other Items

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	A—Ash B—Basswood	X—Beech. C—Cherry	Y—Cottonwood. E—Elm	G—Red & Sap Gum B—Black Gum	T—Tupelo H—Hickory	M—Magnolia S—Soft Maple	O—Red & White Oak P—Pecan	X—Poplar S—Sycamore	W—Walnut L—Willow	A—A.D. Rough Dimension K—K.D. Rough Dimension	F—Finished Dimension S—Semi-Finished Dimension	G—Glued-up Dimension I—Interior Trim & Mouldings T—Thresholds, Treads, Risers W—Wall Paneling	C—Construction Boards T—Timbers	V—Vehicle & Wagon Stock C—Crating	P—Southern Pine C—Cypress	R—Red Cedar W—White Cedar	Other
FLORIDA																			
Foley Lbr. Industries, Jacksonville 1	MW	12	A			GB	T	MS	O	X					T		PC	RW	
Paterson-McInnis Lbr. Co., Gulf Hammock	M	25	AB	C	E	GB	T	MS	OP						T		PC	R	
St. Joe Lbr. & Export Co., Port St. Joe	M	24	A			GB	T	M		X					CT	C	PC	W	*
Thomas Lbr. & Mfg. Co., Quincy	M	8			E	G	T	M		X					T		P		
GEORGIA																			
Augusta Hardwood Co., Augusta—See adv. p. 16	M	12	A		YE	GB	TH	MS	O	XS		AK					PC		
Chatsworth Lbr. Co., Chatsworth	M	9							O	X					T	C	P		
Chattahoochee Valley Lbr. Co., La Grange—See adv.. p. 79	M	12	A			G			O	X			F		C	C	P		
Cleveland-Oconee Lbr. Co., Toomsboro	MW	6	A		YE	GB	TH	MS	O	XS					CT	C	PC		
Georgia Hardwood Lbr. Co., Augusta—See adv. p. 16	MW	250	AB	XC	YE	GB	TH	MS	OP	XS	WL	AK			CT		PC	RW	Z
Jeffreys-McElrath Mfg. Co., Macon	M	45	A		Y	GB		S	O	XS							P		1
McCann Lbr. Co., Doctortown	M	12	A		E	G	T	MS	O	X		K			CT		PC		
McCulloch Lbr. Co., P. O. Box 771, Atlanta—See adv. p. 78	W		AB	X	Y	GB	TH	MS	O	XS		AK			W CT	VC	PC		*
Northcutt Lbr. Sales Corp., Sandersville	W		A	X	YE	GB	TH	MS	O	XS		AK			C	C	PC		
Pratt Lbr. Co., Covington	M					GB	T	S	O	X					C		P		
Reynolds Bros. Lbr. Co., Albany	M	12	A	X	YE	G	TH	MS	O	XS		AK	S	I	T CT		PC		△1
Reynolds & Manley Lbr. Co., Savannah—See adv. pp. 16-41	M	18	A		E	GB	T	MS	O	X					T	C	PC		
Rush Lbr. Co., Hawkinsville	M	8	A		YE	GB	TH	MS	O	XS					C		PC		
J. W. Starr & Sons Lbr. Co., Atlanta	M	25				GB			O	X		A	F		T	VC	P		
Sullivan Lbr. Co., Preston	M	15	A	X	YE	GB	TH	MS	O										
Swainsboro Lbr. Co., Swainsboro	MW	12	A		YE	GB	HT	MS	O	XS							PC		
ILLINOIS																			
Graham Lbr. Co., Chicago 4	MW		B	XC	YE	GB	T	S	O	XS	W	AK	F		T	C	PC	R	12
Geo. J. Silbernagel, Chicago 3	W					GB	T												
KANSAS																			
Frank Paxton Lbr. Co., Kansas City 3—See adv. p. 66	W		AB	XC	YE	GB	TH	MS	OP	XS	WL			W		V	PC	R	2
KENTUCKY																			
Brown Lbr. Co., Louisville 8	W	24				GB	T	MS	O	X					CT	C	PC		
Gamble Bros. Inc., Louisville	M											K	FS	G	T				
The Mengel Co., Louisville 1—See adv. pp. 23-129	M	20	AB	X	YE	GB	TH	MS	OP	XS	L	AK	FS	G	W		C		12
R. C. Owen Co., Hopkinsville	M	12	A	XC	YE	GB	H	S	O	XS	W	AK	FS	I	TW	T	V	R	
Stimson Lbr. Co., Owensboro	M	8	AB	X	E	G	H	S	O	XS						T			
LOUISIANA																			
Davis Bros. Lbr. Co., Ltd., Ansley—See adv. p. 69	M	9	A	X	E	GB	H		O										
Frost Lbr. Industries, Shreveport	M	175	AB	X	YE	GB	TH	MS	OP	S		K	S	I	TW	CT	VC	PC		6
Hillyer Deutsch Edwards Inc., Oakdale	M	24	A	XC	YE	GB	TH	M	OP	S	L	AK	FS	G		T	VC	PC		#
J. W. Jeffries Lbr. Co., Shreveport	M	8	AB	X	YE	GB	TH	MS	OP	S						CT		PC		•
Kellogg Lbr. Co., Monroe	M	9	AB	X	YE	GB	TH	MS	OP	XS	L					CT		C		•
King-Edwards-Fuller Co., St. Francisville	M	17	AB	XC	YE	GB	TH	MS	OP	XS	WL					CT	VC	PC		•
Louisiana Central Lbr. Co., Clarks—See adv. p. 16	M	20	A	X	E	GB		M	OP	XS							V	PC		
F. C. Luthi & Co., New Orleans 12	W																			I
Mansfield Hardwood Lbr. Co., Shreveport	M	24	AB	XC	YE	GB	TH	M	OP	S				I		CT	VC	PC		•3

#—Bending Stock
△—Poplar Aircraft Stock
*—Car Material
12—Boxes, Box Shook, Plywood & Veneer

1—Boxes, Box Shook
2—Plywood & Veneer
3—Box Shook
V—Veneer

I—Importers of Balsa and Other Tropical Woods
6—Car Material, Bending Stock, Treated Lumber

Z—Buckeye, Butternut, Hackberry, Mahogany, Teak

Southern Hardwood Lumber, Specialties and Other Items

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	A—Ash B—Basswood	X—Beech. C—Cherry	E—Elm. Y—Cottonwood	G—Red & Sap Gum B—Black Gum	T—Tupelo H—Hickory	M—Magnolia S—Soft Maple	O—Red and White Oak P—Pecan	X—Poplar S—Sycamore	W—Walnut L—Willow	A—A.D. Rough Dimension K—K.D. Rough Dimension	F—Finished Dimension S—Semi-Finished Dimension	G—Glued-up Dimension I—Interior Trim & Mouldings	T—Thresholds, Treads, Risers W—Wall Paneling	C—Construction Boards T—Timbers	V—Vehicle & Wagon Stock C—Crating	P—Southern Pine C—Cypress	R—Red Cedar W—White Cedar	Other
LOUISIANA—Continued																				
Roy O. Martin Lbr. Co., Alexandria	M	10	A	X	E	GB	TH	MS	OP	S	L				W	CT	C	PC		
May Bros., Garden City	M	30	AB	XC	YE	GB	TH	M	OP	XS	L	A				T	VC	C		
McCarroll Lbr. Co., Denham Springs	M	8		X		GB	TH	M	OP	XS						T		PC		4
Midland Valley Lbr. Co., Baton Rouge—See adv. p. 78	MW	12	AB	XC	YE	GB	TH	MS	OP	XS	WL					C	VC	PC	RW	
Newellton Hardwood Co., Newellton	M	9	A		YE	G		S	OP	S	L					T		C		
Schwing Lbr. & Shingle Co., Plaquemine	M	15			YE	G	T	S	OP	S	L			I		CT		C		EC
E. Sondheimer Co., Sondheimer	M	11	A		YE	G	TH	S	OP	S	L					T		C		
Thistlethwaite Lbr. Co., Opelousas	M	8	AB	X	YE	GB	TH	M	OP	S	L							C		
Turner Lbr. Co., Le Moyen	M	11	AB		YE	GB	T	S	OP	S	L					T		C		
Urania Lbr. Co., Urania—See adv. pp. 16, 17	M	18	A	X	E	GB	TH	M	OP	XS		A	S			CT	VC	PC		
Weaver Bros. Lbr. Co., Shreveport	M	12	AB	XC	YE	GB	TH	MS	OP	S						T		PC		
Woodward-Walker-Bowen, Inc., Shreveport 94	W			X		GB			O								C	PC		
MARYLAND																				
Arthur V. Charshee & Son, Baltimore 18—See adv. p. 78	W		A		Y	GB			O	X		AK								
John Taylor, Catonsville 28	W		A	X	YE	GB	T	S	O	X								P		
MASSACHUSETTS																				
Atlantic Lbr. Co., Boston	M	50	AB	XC	YE	GB	TH	MS	OP	XS	WL					T	V	PC	R	#
MISSISSIPPI																				
Bailey Lbr. Co., Laurel—See adv. p. 16	M	12	AB	X	YE	GB	TH	MS	O	XS		AK	S			CT	VC	PC		*#
Burdette Lbr. Co., Meridian	MW	25				5	5		O	X						T		P		
Corinth Planing Mill Co., Corinth—See adv. p. 72	MW	5				G			O	X		A						P		9
A. De Weese Lbr. Co., Philadelphia	M	20				GB	T		O	X		AK	FS			C		P		#6
D. L. Fair Lbr. Co., Louisville	M	30	B			G	H		OP	X		AK	FS	GI	T	CT	C	P		
Gooch Bros. Lbr. Co., Yazoo City	M	7	AB	X	YE	GB	H	S	O	XS						T		C		
D. H. Hall Lbr. Co., Columbus	M	7	A	X	YE	GB	T	S	OP	XS						T		C		•
Hall-Inzer Lbr. Co., Amory	M	5	A	X	YE	GB	T	S	OP	XS	WL					T		PC		•
Hall & Neely, New Albany	M	5	A	X	YE	GB	TH	S	O	XS	W					T		C		
Henderson-Molpus Co., Philadelphia	M	12		X		GB	T		O	X		AK	F	I	T	T	C	P		
Houston Bros., Vicksburg	M	10	AB	XC	YE	GB	TH	MS	OP	XS	WL	A	S			T	VC	PC		
J. M. Jones Lbr. Co., Natchez—See adv. p. 16	MW	30	AB	XC	YE	GB	TH	MS	OP	XS	WL	AK	FS			CT	VC	PC		#
King Lumber Industries, Canton	M	18	A	X	E	GB	TH	MS	O	XS		AK	F	G		T	C	PC		
R. S. Learned & Son, Natchez	M	9	AB	X	YE	G		S	OP	XS	L					T				
Link-Newcomb Mill & Lbr. Co., Tchula	M	12	AB	X	YE	GB	TH	S	OP	XS	L					CT	C	C		
McGraw-Curran Lbr. Co., Yazoo City—See adv. p. 16	M	9	B	XC	YE	GB	TH	MS	OP	XS	L					T		C		
W. A. Ransom Lbr. Co., Natchez	M	12	AB	XC	YE	GB	TH	MS	OP	XS	L					CT	V	C		•△
Sallis Lbr. Co., Brandon	M		AB	XC	YE	GB		MS	O	X								P		
Stewart-Farris & Myers Lbr. Co., Morton—See adv. p. 46	M	15	A	X	E	GB	T	M		XS		AK	FS	I		C	C	P		
R. A. Vinton Lbr. Co., Greenwood	M	7	A	X	YE	GB	TH	S	OP	XS	L					T		C		
Wax Lbr. Co., Woodville—See adv. p. 16	M	18	AB	XC	YE	GB	TH	MS	OP	XS	WL	A	F			CT	C	PC		
Williams & Voris Hardwood Co., Jackson	M	5	AB	XC	YE	GB	TH	MS	OP	XS						T		C		
W. W. Woody Lbr. Co., Keirn	M	5	A	X	YE	GB	TH	S	OP	XS	L					T		C		
MISSOURI																				
Canthook Lbr. Co., St. Louis 1	MW				YE	G		S	O	XS						CT		PC		
Dierks Lbr. & Coal Co., Kansas City 6	M	100				GB			O			AK		I	T	C	C	P		
Exchange Sawmills Sales Co., Kansas City	W		A	X		GB	T	M	OP	XS						C	C	PC		
W. T. Ferguson Lbr. Co., St. Louis 1—See adv. p. 58	MW	75	A	X	YE	GB	T	MS	O	XS	L	AK	S			CT	VC	PC		8

*—Bending Stock
•—Car Material
EC—Egg Case Ends & Centers

6—Rgh. Bds., Finished Bds., Box Shook, Grain Doors
△—Poplar Aircraft Stock

4—Box Shook and Grain Doors

8—Grain Doors
9—Crating Stock

Southern Hardwood Lumber, Specialties and Other Items

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	A—Ash B—Basswood	X—Beech. C—Cherry	E—Elm. Y—Cottonwood	G—Red & Sap Gum B—Black Gum	T—Tupelo H—Hickory	M—Magnolia S—Soft Maple	O—Red and Dhite Oak P—Pecan	X—Poplar S—Sycamore	W—Walnut L—Willow	A—A.D. Rough Dimension K—K.D. Rough Dimension	F—Finished Dimension S—Semi-Finished Dimension	G—Glued-up Dimension I—Interior Trim & Mouldings	T—Threshold, Treads, Risers W—Wall Paneling	C—Construction Boards T—Timbers	V—Vehicle & Wagon Stock C—Crating	P—Southern Pine C—Cypress	R—Red Cedar W—White Cedar	Other
MISSOURI—Continued																				
Fry-Fulton Lbr. Co., St. Louis 4	W		AB	XC	YE	GB	TH	MS	OP	XS	WL	AK								†
Gaines Hardwood Lbr. Co., St. Louis	MW		AB	XC	YE	GB	TH	MS	OP	XS	WL					T	V	C	R	*#
Gideon-Anderson Lbr. Co., Gideon	W	6		X	YE	GB	T	S		S							C	C		1
Hobae Veneer & Lbr. Co., Caruthersville	M	7	A		YE	G		S	OP	S						T		C		
M. E. Leming Lbr. Co., Cape Girardeau	M	4		X	YE	G	H	S	OP	XS	L					CT		C		4
Long-Bell Lbr. Co., Kansas City 6	MW		AB	X	E	GB	TH	S	O	XS			S			CT	V	P		*
Sabine Lbr. Co., St. Louis	M	75	AB	X	YE	GB	H	M	OP	S		A				T		P		
Thomas & Proetz Lbr. Co., St. Louis	MW		A	XC	YE	GB	T	MS	OP	XS	WL	A	S			CT	C	PC		
H. E. Webster Lbr. Co., Kansas City 6.	W		AB	X	YE	G	TH	MS	OP	XS	WL							PC	R	
NORTH CAROLINA																				
L. N. Bagnal, P. O. Box 2896, Winston-Salem—See adv. p. 44	W		AB	X	YE	GB	TH	MS	O	XS	L	AK	FS	G	W		C	PC		N
P. M. Barger Lbr. Co., Statesville	W		AB	XC	YE	GB	TH	MS	OP	XS	L						C	PC	R	
E. N. Beard Lbr. Co., Greensboro	W		AB	X	YE	GB	TH	MS	OP	XS	L		S			T	C	PC		#
C. K. Callaham & Sons Lbr. Co., Charlotte			A	X	YE	GB	TH	MS	O	XS	L					CT	VC	P		
J. E. Elrod Lbr. Co., Charlotte	MW				Y	GB		S	OP	X		AK	FS			CT	C	PC		
Gennett Lbr. Co., Asheville																				
Greene Bros. Lbr. Co., Elizabethtown	M	15				G	T	S	O	X		K						PC		
Saunders & Cox, Williamston	M	7	A		Y	GB	T	S	O	S						CT		PC		
So. Atlantic Lbr. Co., Greensboro	MW						T		O	X						C	C	PC		
W. M. Storey Lbr. Co., Winston-Salem	MW					GB	T		O	X						CT	C	P		
Triplett Lbr. Co., Lenoir	W	4	AB	X	YE	GB	TH	S	OP	XS	L	AK	F		T	CT	VC	PC		
SOUTH CAROLINA																				
Argent Lbr. Co., Hardeeville	M	18	A			GB	T	S		X				I	W	C				4
Brooklyn Cooperage Co., Sumter	M	30	A		Y	G	T					AK						C		
Coastal Lbr. Co., Lake City	M	7	A		YE	GB	T	S	O	XS						CT		PC		10
Conway Lbr. Co., Conway	M	12				GB	T	S		X						T		PC		10
Hoffman Lbr. Co., Columbia	M	12	A		YE	GB	T	S	O	XS						CT		C		10
Holly Hill Lbr. Co., Holly Hill	M	17	A		YE	GB	T	S	O	XS		AK	FS	GI	TW	CT	C	PC		11
Holly Hill Cypress Co., Holly Hill	M	19	A		E	GB	T	S	O	X		AK	FS	GI	TW	CT	C	PC		10
Korn Industries, Inc., Sumter	M	15	A		YE	GB	TH	S	OP	XS		AK	FS	GI	TW	CT	C	PC		14
G. F. League Lbr. Co., Greenville	W		AB	X	Y	GB	T		O	XS		AK				C	C	P		
Lexington Lbr. Co., Columbia	M	15	A		Y	GB	T	S	O	XS						CT	C	PC		
Lightsey Bros., Miley—See adv. pp. 16-40	M	18	A		E	G	T	S	O	X						T		PC		
Santee River Hardwood Co., St. Stephen	M	12	A		YE	GB	TH	S	OP	XS								PC		10
TENNESSEE																				
Anderson-Tully Co., Memphis 10—See adv. p. 16	M	75	AB	XC	YE	GB	TH	MS	OP	XS	WL	AK	FS	G	T		VC	PC		12
C. P. Bodine Lbr. Co., Memphis	MW	7			YE	GB	T	S	OP	S						T		C		
A. M. Bowen Lbr. Co., Dyersburg	M	7	AB	X	YE	GB	H	S	OP	XS	W	A				CT	C	C		11
E. L. Bruce Co., Memphis 1—See adv. p. 207	M	100	AB	X	YE	GB	TH	MS	OP	XS	WL	AK	FS	GI	T	T	VC	PC		#4
Farris Hardwood Lbr. Co., Nashville																				
Chapman & Dewey Lbr. Co., Memphis	M	18	A	X	YE	GB	TH	S	OP	XS	L			I	TW	CT	C	C		10
Frank A. Conkling Co., Memphis 3	MW	15	AB	X	YE	GB	TH	MS	OP	XS	L	AK	S	G		T	VC	C		12

*—Car Material
1—Boxes, Box Shook
N—Plywood, Veneer and All Hardwood Items for Furniture Trade
10—Cypress Siding
11—Poplar & Cypress Siding
12—Plywood & Veneer
5—Bending Stock
14—Gum Veneer, Flitches & Logs
4—All Items Hardwood Lumber for Furniture Trade
7—Mahogany

Southern Hardwood Lumber, Specialties and Other Items

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	A—Ash B—Basswood	X—Beech. C—Cherry	Y—Cottonwood. E—Elm	G—Red & Sap Gum B—Black Gum	T—Tupelo H—Hickory	M—Magnolia S—Soft Maple	O—Red & White Oak P—Pecan	X—Poplar S—Sycamore	W—Walnut L—Willow	A—A.D. Rough Dimension K—K.D. Rough Dimension	F—Finished Dimension S—Semi-Finished Dimension	G—Glued-up Dimension I—Interior Trim & Mouldings	T—Thresholds, Treads, Risers W—Wall Panelling	C—Construction Boards T—Timbers	V—Vehicle & Wagon Stock C—Crating	P—Southern Pine C—Cypress	R—Red Cedar W—White Cedar	Other
TENNESSEE—Continued																				
Fulton Band Mill, Memphis	M	7		X	YE	GB	T		O	XS						T		C		
C. M. Gooch Lbr. Co., Memphis	M	32	AB	XC	YE	GB	TH	MS	OP	XS	WL					T		C		
Jackson Sawmill Co., Jackson	M	9	A	X	YE	GB	TH	S	O	XS	WL					T	VC	C		#
Miller & Co., Jackson	M	4	A	XC	YE	GB	TH	S	O	XS	W					T	V	C	R	#
Miss.-Valley Hardwood Co., Memphis	M	26	A	X	YE	GB	TH	MS	OP	XS	WL							C		14
Nickey Bros., Inc., Memphis 12	MW	12	AB	XC	YE	GB	TH	MS	OP	XS	WL	AK	FS	I	TW	CT	V	C	R	
Phillips Wood Products Co., Memphis 4	W		A	X	YE	GB	TH	MS	OP	XS	L	AK	FS	GI	TW	CT	VC	P		15
E. W. Pratt, Memphis—See adv. p. 78	W		AB	X	YE	GB	T	MS	O	X		AK		I			V			#
Schaefer Lbr. Co., Inc., Jackson	MW			X		G		S	O	X										
Shannon Bros. Lbr. Co., Memphis	M	14	A	X	YE	G	T	S	OP	S	L					T		C		
The Southern Star Lbr. Co., McKenzie	M	5	A	XC	E	GB	TH	S	O	XS	W									
James E. Stark Co., Memphis 10	M	12	AB	XC	YE	GB	TH	S	OP	XS	WL	K	FS	G		T	V	C		16
Thompson-Katz Lbr. Co., Memphis	W		A																	17
United Timber & Lbr. Co., Memphis	M	11	AB	XC	YE	GB	TH	MS	OP	XS	L	A	S	I		CT		PC		18
Vestal Lbr. & Mfg. Co., Knoxville—See adv. p. 32	M	40	AB	XC	YE	GB	TH	S	OP	XS	WL	AK				T	C	PC	R	#
Walker & Smith Lbr. Co., McMinnville	MW	5	AB	XC	E	B	H		O	X	W					T	V		R	#
Welsh Lbr. Co., Memphis	M	11	A	X	YE	GB	TH	S	OP	XS	L					T		C		
Williams & Voris Lbr. Co., Chattanooga	M	8	AB	XC	YE	GB	TH	MS	O	XS	W						V		R	
Woods Lbr. Co., Memphis—See adv. p. 16	MW	20	A	X	YE	GB	TH	S	OP	XS	L					T		C		
TEXAS																				
Angelina Hardwood Sales Co., Lufkin	M	24	A		E	GB	TH	M	OP	S		AK	S			CT	VC	C		
W. T. Carter & Bro., Houston	M	8	AB	X	E	GB	H	M	O	S						CT	V	PC		*
Edens-Birch Lbr. Co., Corrigan	M	25	A		E	GB		M	OP	S			F							
J. S. Hunt Lbr. Co., Nacogdoches—See adv. p. 53	M	12				GB						K	F			T		P		
Kirby Lbr. Corp., Houston 1—See adv. p. 73	MW	20	A	X	E	GB	H	M	OP	S						T		PC		
Sabine Lbr. Co., Houston	M	15	AB	X	YE	GB	H	MS	OP	S	WL	A				T	C	PC		
Southern Pine Lbr. Co., Texarkana	M	20	AB	XC	YE	GB	TH	M	OP	S	W	K	FS	GI	T	T		PC		
E. A. Stewart Lbr. Co., Texarkana	M	37	A		YE	GB	TH		OP		WL	AK	FS	I	T	CT	V	C		*#
J. E. Stone Lbr. Co., Nacogdoches	M	12	A	X	E	GB	H	M	O	S	W			I	W	CT	VC	P		*
Temple Lbr. Co., Pineland	M	9	AB	X	E	GB	TH	MS	OP	S		AK	FS	G	T	CT		PC		*
Texas Hardwood Mfg. Co., Dallas	MW											K	FS	G						
Tilford-Hunt Lbr. Co., Nacogdoches—See adv. p. 53	MW	18				GB	T		O			AK	F					P		
VIRGINIA																				
Camp Mfg. Co., Franklin	M	10	A	X	E	GB	T	S	O	XS				I			C	PC		10
Richmond Cedar Works, Norfolk	M	33	A		E	GB	T	S	O	X				I	W	CT	C	PC	W	19
Williams & McKeithan Lbr. Co., Lynchburg	MW	40	A	X		GB	TH	S	O	XS		A	F			CT	C			

2—Bending Stock
10—Cypress Siding
15—Stacking Sticks
16—K.D. Casket Shells, Completed Furniture & Parts, Show Cases
17—Ash Specialists
18—Hickory Dimension, Ski Billets
*—Car Material
19—Cypress Siding—Also Stacking Sticks
14—Gum Veneer Flitches & Logs

Southern Pine, Cypress, Hardwoods, Specialties

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	Shortleaf Yellow Pine	Longleaf Yellow Pine	Cypress	Southern Hardwoods	Yard & Shed Stock	D—Dimension T—Timbers	L—Lath C—Cedar Closet Lining	Interior Trim & Mouldings	X—Pine Bev. Sd. D—Drop Sd. C—Cyp. Sd. P.—Poplar Sd.	Flooring X—Pine. C—Cypress	H—Hardwood Flooring C—Hardwood Constr. Boards	F—Factory Lumber I—Industrial Cut Stock	X—Box Shook & Crating C—Crating Only	K. D. Window & Door Frames	L—Log Cabin Siding K—Knotty Paneling	R—Roofers. B—Boards	C—Car Material T—Treated Stock	Other
ALABAMA																				
Allison Lbr. Co., Bellamy	M	16	X			X	X	DT		X		X	H		X					
Beatrice Lbr. Co., Beatrice	M	12	X			X	X	DT												
W. A. Belcher Lbr. Co., Birmingham	MW	20	X	X			X	DT	L	X	X	X			C					
W. E. Belcher Lbr. Co., Centerville	M	30	X	X		X	X	DT		X	X	X			X					
A. B. Carroll Lbr. Co., Hurtsboro	M	25	X															R		
Clarke County Lbr. Co., Thomasville—See adv. p. 74	W		X	X		X	X	DT		X	DP	X	HC	FI	X			BR	C	O
Dadeville Lumber Co., Dadeville	M	20	X	X		X	X	DT		X	D	X	C					B	C	
F. M. Downing Lbr. Co., Gordo	MW	15	X			X	X	T			D									P
Foshee Lbr. Co., Box 544, Montgomery	M	12	X	X		X	X								C					
Gulf Lbr. Co., Mobile	M	48	X	X			X	DT			X	X		FI				R	C	
Hallett Mfg. Co. Inc., Box 171, Mobile	M	8	X	X	X	X	X	DT		X	XD	XC	H	F						1
Jefferson Lbr. Co., Birmingham	MW	45	X	X				DT			X	X							C	
Kentwood Lbr. Corp., Birmingham—See adv. p. 54	W		X	X		X	X	DT			XD	X	HC	F	C			RB	C	
W. M. McGowin Lbr. Co., Pine Apple	M	18	X	X		X	X	DT			D	X						R		
Miller & Co., Inc., Selma	M	36	X	X	X	X		DT			XD									
T. R. Miller Mill Co., Brewton	M	25	X	X			X	DT	C		X	X	HC	I	X			BR	CT	
Nettles Lbr. Co., Land	M	18	X	X			X	DT			X	X								
Pine Plume Lbr. Co., Montgomery—See adv. pp. 16-65	MW	40	X	X		X	X	D			XC	X		I	X				C	
Ralph Lbr. Co., Hillwood	M	15		X		X	X	DT			X	X		I	X				C	
Scotch Lbr. Co., Fulton—See adv. p. 69	M	25	X	X		X	X	DT		X	X	X	H					B	C	
Shepherd Lbr. Corp., Montgomery	M	35	X			X	X	D			X	X			C				C	
Sims Lumber Co., Selma	M	8	X	X		X	X	D		X										
Smith Lbr. Co., Red Bay	M	25	X		X	X	X	DT	C		XP	X	C	FI	X					
W. C. Smith Lbr. Co., Montgomery 3	W		X	X		X	X	DT	L			X	HC	I	X			BR		
W. T. Smith Lbr. Co., Chapman	M	60	X	X	X	X	X	DT	L	X	X	X	H	FI	X				C	
M. W. Smith Lbr. Co., Jackson	M	30	X	X		X	X	DT			X	X		I						
Steel City Lbr. Co., Birmingham 3	W		X	X	X	X	X	DT	L	X	XC	X	H	FI	X			BR	CT	O
Stringfellow Lbr. Co., Birmingham	MW	25	X	X		X	X	DT	L			X		FI	XC			BR		
Stutts Lbr. Co., Inc., Thomasville—See adv. p. 50	M	22	X	X	X	X	X	DT	L	X	XC	X								
Stutts Sawmill Co., Inc., Thomasville—See adv. p. 50	M	18	X	X	X	X	X	DT	L	X	XC	X								
Summerville Bros. Lbr. Co., Aliceville	M	10	X			X		D							C			B		
J. W. Wells Lbr. Co., Montgomery—See adv. p. 74	MW	100	X	X	X	X	X	DT						I						
Wood Lbr. Co., Birmingham	MW		X	X		X	X	DT						FI	XC			BR	CT	O
ARKANSAS																				
Bradley Lbr. Co. of Ark., Warren—See adv. p. 211	MW	50	X		X	X	X	D	C	X	XC	X	HC	FI	X	X	LK			
Cook Co., A. B., Malvern	M		X				X	D		X	X	X	H							
Fordyce-Crossett Sales Co., Crossett & Fordyce	M	100	X		X	X	X	DT	L	X	X	X	H	FI	X	X			T	
Ozan Lbr. Co., Prescott—See adv. p. 50	M	25	X			X	X	D	L	X	X	X		F	X		L			
Pierce & Young Lbr. Co., Morrilton	M	30	X			X	X	DT			X	X							C	
Southern Lbr. Co., Warren	M	45	X			X	X	DT	L	X	X	X	H	FI	X					
Southern Pine Lbr. Co. (See Texas Listing)																				
Waldo Hardwood Co., Waldo	M	5	X			X	X	DT			X							B		
Williams Mfg. Co., Sheridan	MW	25	X			X	X	T				X		FI						
DISTRICT OF COLUMBIA																				
Paul B. Kern Lbr. Co., Washington	W		X	X	X	X	X	D	C	X	X	X	H	I	C		K	BR		O
FLORIDA																				
The Alger-Sullivan Lbr. Co., Century	M	25		X			X	T		X	X	X						B	C	

P—Posts O—Other Softwoods 1—Cypress and Poplar Siding

Southern Pine, Cypress, Hardwoods, Specialties

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	Shortleaf Yellow Pine	Longleaf Yellow Pine	Cypress	Southern Hardwoods	Yard & Shed Stock	D—Dimension T—Timbers	L—Lath C—Cedar Closet Lining	Interior Trim & Mouldings	X—Pine Bev. Sd. D—Drop Sd. C—Cyp. Sd. P—Poplar Sd.	Flooring X—Pine. C—Cypress	H—Hardwood Flooring C—Hardwood Constr. Boards	F—Factory Lumber I—Industrial Cut Stock	X—Box Shook & Crating C—Crating Only	K. D. Window & Door Frames	L—Log Cabin Siding K—Knotty Paneling	R—Roofers. B—Boards	C—Car Material T—Treated Stock	Other
FLORIDA—Continued																				
Brooks-Scanlon Corp., Foley	M	100		X			X	DT	L		X X	X		I					T	
Cummer Sons Cypress Co., Jacksonville	M	15			X		X	DT			X C	C		F			L			S
Foley Lbr. Industries, Jacksonville 1	MW	50	X	X	X	X	X	DT	L		X DC	XC	H	F			LK	B	CT	S
C. J. Jones Lbr. Co., Everglades	M	12		X	X			T			X	X		I	X				C	
Lee Tidewater Cypress Co., Perry	M	35			X		X	DT						FI	X					
Neal Lbr. & Mfg. Co., Blountstown	M	12	X	X			X	DT			D	X								
Peavy-Wilson Lbr. Co., Holopaw—See adv. p. 70	M	25		X	X		X	DT			XC	X		FI					C	
Putnam Lbr. & Export Co., Jacksonville	W		X	X	X	X	X	DT	L		X X	X	H	FI	C	X		B	CT	
Thomas Lbr. & Mfg. Co., Quincy	M	12	X	X		X	X	D	L		X X	X	H	X	X	X	X	B	C	
GEORGIA																				
Alexander Bros. Lbr. Co., Columbus	M	15	X			X	X	D												HC
W. R. Altman Lbr. Co. Inc., Sylvania	M	10	X	X	X	X		T			X X	X						R		
Atlanta Oak Flooring Co., Atlanta	MW		X		X	X			C		X	X	H	FI			K	B	C	G
Augusta Hardwood Co., Augusta—See adv. p. 16	M	20	X	X	X	X	X	DT			X XP	X						BR		
J. N. Bray Lbr. Co., Valdosta	M	10	X	X			X	DT			X D	X						R		
Brownlee Lbr. Mfg. Co., Cedartown	M	6	X			X	X	D												
Campbell Coal Co., Box 1498, Atlanta 1—See adv. p. 72	MW	10	X	X		X	X	DT			X XD	X		FI	XC	X	K	B	C	
Chatsworth Lbr. Co., Chatsworth	M	10	X			X	X	DT			XP	X		FI						N
Chattahoochee Valley Lbr. Co., La Grange—See adv. p. 79	M	12	X			X	X													HC
Dolan Lbr. Co., Augusta	MW	40	X	X		X		T			D				X			BR		
Georgia Hardwood Lbr. Co., Augusta—See adv. p. 16	MW	250	X	X	X	X	X	DT			X XD	X	H	FI	C			B	CT	
Mose Gordon Lbr. Co., Commerce	M	30	X			X	X	DT			D	X							C	
Hancock Lbr. Co., Quitman	M	30	X	X		X	X	DT			X X	X						B	C	
Jeffreys-McElrath Lbr. Co., Macon	M	45	X			X	X	DT			IT X	X		F	X			R		
McCulloch Lbr. Co., P. O. Box 771, Atlanta—See adv. p. 78	W		X	X	X	X	X	DT			XC	X	C		C		K	BR	CT	HC
Northcutt Lbr. Sales Corp., Sandersville	W		X	X	X	X	X	D												
Reynolds Bros. Lbr. Co., Albany	M	15	X		X	X		T			IT X				X			R		
Reynolds & Manley Lbr. Co., Savannah—See adv. pp. 16-41	M	18	X	X	X	X	X	DT			XC	X								
J. W. Starr & Sons Lbr. Co., Atlanta	M	25	X	X		X		DT			X			FI	X		K	RB		
Sullivan Lbr. Co., Box 32, Preston	M	15	X			X	X				X	X			X					
ILLINOIS																				
Graham Lbr. Co., Chicago 4	W		X	X	X	X	X	DT			X X	X	H	F	X				C	SH
Edward Hines Lbr. Co., Chicago 2—See adv. p. 377	MW	140	X	X	X	X	X	DT			X X	X	H	FI	C	X	K	BR	C	O
Knudson & Mercer Lbr. Co., Chicago 4—See adv. p. 79	W		X				X	DT			X X			FI		X				
KANSAS																				
Frank Paxton Lbr. Co., Kansas City 3—See adv. p. 66	W		X		X	X							H	FI						SH
KENTUCKY																				
Brown Lbr. Co., Louisville	W	60	X	X	X	X	X	DT			X	D	X						CT	
Mongel Co., Louisville 1—See adv. pp. 23-129	M	6			X	X														YG
McCracken & McCall, Inc., Lexington—See adv. p. 32	MW	5										P		C						
Stearns Coal & Lbr. Co., Stearns—See adv. p. 32	M	15	X			A	X	D												
LOUISIANA																				
J. A. Bentley Lbr. Co., Zimmerman	M	18		X				DT	L			X								
Colfax Lbr. & Creosoting Co., Colfax	M	10	X			X	X	DT				X	X	C					T	
Crowell Long Leaf Lbr. Co., Inc., Long Leaf	M		X	X			X	DT			X	X	X		I					
Davis Bros. Lbr. Co., Ansley—See adv. p. 69	M	15	X			X		DT			X	X	X							

N—Northern White Pine HC—Hardwood Crating Stock O—Other Softwoods S—Cypress Shingles G—Glued-up Dimension YG—Doors, Also Glued-up Dimension SH—Other Softwoods and Hardwoods

Southern Pine, Cypress, Hardwoods, Specialties

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	Shortleaf Yellow Pine	Longleaf Yellow Pine	Cypress	Southern Hardwoods	Yard & Shed Stock	D—Dimension T—Timbers	L—Lath C—Cedar Closet Lining	Interior Trim & Mouldings	X—Pine Bev. Sd. D—Drop Sd. C—Cyp. Sd. P—Poplar Sd.	Flooring X—Pine. C—Cypress	H—Hardwood Flooring C—Hardwood Constr. Boards	F—Factory Lumber I—Industrial Cut Stock	X—Box Shook & Crating C—Crating Only	K. D. Window & Door Frames	L—Log Cabin Siding K—Knotty Paneling	R—Roofers. B—Boards	C—Car Material T—Treated Stock	Other
LOUISIANA—Continued																				
Frost Hardwood Floors Inc., Shreveport	M	40							C				H						T	
Frost Lbr. Industries, Inc., Shreveport	M	175	X		X	X	X	DT	C	X	XC	X	HC	FI	X	X	LK	BR	CT	
H. D. Foote Lbr. Co., Alexandria	M	14	X	X		X	X	DT			X	X	C	FI				B	C	
La. Cypress Lbr. Co., Ponchatoula	M				X															
La. Long Leaf Lbr. Co., Fisher	M	25	X			X	X	D		X	X	X							C	
Mansfield Hardwood Lbr. Co., Shreveport	M	60	X			X	X	DT		X	X	X							C	
Midland Valley Lbr. Co., Baton Rouge—See adv. p. 78	MW	8	X	X	X	X			C											WC
Roy O. Martin Lbr. Co., Castor	M	10	X		X	X	X	DT				X								VL
McCarroll Lbr. Co., Denham Springs	M	12	X		X	X		DT		X	X	X								
Thomas Lbr. Co., Winnfield	M	20	X	X			X	DT		X	X	X							C	
U. S. Cedar Corp., Baton Rouge	MW								C											WC
Urania Lumber Co., Urania—See adv. pp. 16-17	M	18	X	X	X	X	X	DT		X	X	X	C	F					C	
J. P. Voss Lbr. Co., Dubach	M	10	X		X	X		DT			X	X						B		
Walthall Lbr. Co., Hammond	M	4	X	X				T		X	X	X		F					C	
Woodard Walker Bowen, Inc. Shreveport	W		X		X	X	X	DT		X	X	X		I	X				C	
MARYLAND																				
John Taylor, Catonsville 28	W		X	X		X	X	DT		X	X	X						BR		O
MASSACHUSETTS																				
Atlantic Lbr. Co., Boston	MW	50	X	X	X	X			C											
MISSISSIPPI																				
Belmont Lbr. Co., Charleston	M	12	X				X	T							C				C	
J. R. Buckwalter Lbr. Co., Union	M		X			X	X	D		X	DP	X	C	FI	X			B		
Burdette Lbr. Co., Meridian	MW	25	X	X		X	X	DT	L					FI						
Central Lumber Co., Brookhaven	M	10	X			X	X	DT		X	X	X		I	C			B		
Corinth Planing Mill Co., Corinth—See adv. p. 72	MW	15	X			X	X	D			XD	X			C			BR		2
Crosby Lbr. & Mfg. Co., Crosby	M		X			X	X	DT		X	X	X	H	FI	X				C	
L. N. Dantzler Lbr. Co., Perkinston	M	12	X	X				DT			D	X								
Deemer Lbr. Co., Deemer	MW	12	X			X	X	DT			X									3
A. DeWeese Lbr. Co., Philadelphia	M	20	X			X	X	D			DP	X	C	FI				B	C	
D. L. Fair Lbr. Co., Louisville	M	30	X			X	X	DT	L	X	XP	X	H	FI		X				
C. L. Gray Lbr. Co., Meridian	M	15	X			X	X	DT			D	X	C					B		
Henderson-Molpus Co., Philadelphia	M	12	X			X	X	DT		X	DP	X		FI	X	X				
Houston Bros., Vicksburg	M	10	X		X	X	X	DT			PC	X			X					
J. M. Jones Lbr. Co., Natchez—See adv. p. 16	MW	30	X		X	X	X	DT			X	X	HC	FI	C			BR	C	
King Lumber Industries, Canton	M		X		X	X	X	DT	L	X	X			FI	X				T	
C. E. Klumb Lbr. Co., Crystal Springs—See adv. p. 78	W		X				X	D			X	X						BR		
S. E. Lackey Lbr. Co., Forest	M	18	X			X	X	DT		X	XD	X	C	FI	XC			B		3
Sallis Lbr. Co., Brandon	M		X			X	X	D				X								
Stewart-Farris & Myers Lbr. Co., Morton—See adv. p. 46	M	15	X			X	X	D		X	X	X	C		X	X				2★
Wax Lbr. Co., Woodville—See adv. p. 16	M	15	X		X	X		DT			D	X								
Wogan-Wilson Land & Lbr. Co., Meridian	MA	18	X	X		X	X	DT			DP	X	C		C			B	C	
MISSOURI																				
Caddo River Lbr. Co., Kansas City	MW	45	X				X	DT	L	X	X	X		FI					C	
Canthook Lbr. Co., St. Louis	MW		X		X	X								FI	X					
Dierks Lbr. & Coal Co., Kansas City	M	100	X			X	X	DT	L	X	X	X	H	I	X	X	L	B	C	
Exchange Sawmills Sales Co., Kansas City	W		X		X	X	X	DT		X	X	X	H	FI	X				C	
W. T. Ferguson Lbr. Co., St. Louis 1—See adv. p. 58	MW	75	X	X	X	X	X	DT	L		XC	X	HC	FI	X			BR	CT	1

★—Furniture Dimension Stock
O—Other Woods
VL—Veneer Logs
WC—Southern White Cedar
MA—Mfrs. Agt.
2—Boxes and Box Shook
3—Poplar Siding
1—Red Cedar Siding and Shingles, Poles and Piling

Southern Pine, Cypress, Hardwoods, Specialties

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	Shortleaf Yellow Pine	Longleaf Yellow Pine	Cypress	Southern Hardwoods	Yard & Shed Stock	D—Dimension T—Timbers	L—Lath C—Cedar Closet Lining	Interior Trim and Mouldings	X—Pine Sdg. D—Drop Sdg. C—Cyp. Sdg. P—Poplar Sdg.	Flooring X—Pine. C—Cypress	H—Hardwood Flooring C—Hardwood Constr. Boards	F—Factory Lumber I—Industrial Cut Stock	X—Box Shook & Crating C—Crating only	K.D. Window & Door Frames	L—Log Cabin Siding K—Knotty Paneling	R—Roofers. B—Boards	C—Car Material T—Treated Stock	Other
MISSOURI—Continued																				
Fleishel Lbr. Co., St. Louis—See adv. p. 57	MW	50	X		X	X	X	DT	L	IT	XC	XC		FI	X				C	
Hill-Behan Lbr. Co., St. Louis	MW		X				X	D												
Long-Bell Lbr. Co., Kansas City 6	MW		X			X	X	DT		X	X	X	H	FI	C			B	CT	
Sabine Lbr. Co., St. Louis 1	M	75	X			X	X	DT		X	X	X		FI	X					EM
H. E. Webster Lbr. Co., Kansas City 6	W		X	X	X	X	X	DT		X	X	X	H	FI						
NEW YORK																				
Atlantic Lbr. Co., Buffalo	MW	50	X	X	X	X			C											
Cotton & Hanlon, Odessa	MW	30	X			X	X	D					H	F				BR		1
NORTH CAROLINA																				
L. N. Bagnal, P. O. Box 2896, Winston-Salem—See adv. p. 44	W		X	X	X	X	X	D		X	X	XC		FI	XC			R		O
P. M. Barger Lbr. Co., Statesville	W		X	X	X	X	X	DT	C	X	XP	X	H		C	X	LK	BR		
Geo. C. Brown & Co., Greensboro—See adv. p. 79	M								C						-					S
C. K. Callaham & Sons Lbr. Co., Inc., P. O. Bx. 1, Charlotte 1	MW		X	X	X	X	X	DT		X	X	X	H				K	R		
Carr Lbr. Co., Pisgah Forest	M	8				A			L				H							
J. E. Elrod Lbr. Co., Charlotte	MW		X	X	X	X	X	DT	L	X	X	X	H	F	X				T	SD
Eureka Lbr. Co., Washington	M	15	X			X	X					X						BR		
Greene Bros. Lbr. Co., Elizabethtown	M	15	X		X	X	X					XC								
Hutton & Bourbonnais Co., Hickory, N. C.—See adv. p. 32	M		X			A		DT		IT	X	X			X				C	
Jeffreys-Myers Mfg. Co., Oxford	M	30	X			X		DT			D	X			X			R		
McLeod & Sinclair, Laurinburg	M	15	X	X				DT		IT	X	X						R		
Oakboro Lbr. Co., Lenoir	M	10	X			A	X	D			XD	X		I	X		K	R		SD
John C. Shepherd Lbr. Corp., Charlotte 1	W		X	X	X	X	X	DT		X	XC	X	HC	FI	X			B	CT	2
South Atlantic Lbr. Co., Greensboro	MW	40	X		X	X								I	X			R		
W. M. Storey Lbr. Co., Winston-Salem	MW		X			X	X	DT				X		FI	X					
Triplett Lbr. Co., Lenoir	W		X	X	X	X	X	DT		X	X	X	H	FI	X		K	BR	C	A
PENNSYLVANIA																				
Babcock Lbr. Co., Pittsburgh 19—See adv. p. 73	MW	40	X	X	X	X	X	DT	C	X	C	X	HC	F	XC			BR	C	
SOUTH CAROLINA																				
Argent Lbr. Co., Hardeeville	M	18	X	X	X	X	X			X	XC	X			X		LK	R	C	
Brooklyn Cooperage Co., Sumter	M	30			X	X														
G. F. League Lbr. Co., Greenville	W		X	X	X	X	X	DT		X		X		FI						
Lexington Lbr. Co., Columbia	M	36	X	X	X	X		T		X	X	X						R		J
Lightsey Bros., Miley—See adv. pp. 16-40	M	18	X	X	X	X	X	DT		X	X	X	H					BR		
Mullins Lbr. Co., Mullins	M	18	X		X	X		T		X	X	X			C			R		J
Santee River Hardwood Co., St. Stephen	M	12	X		X	X	X	T			XC								T	
TENNESSEE																				
Andersen Tully Co., Memphis 10—See adv. p. 16	M		X		X	X					P		H	FI	X					PG
E. L. Bruce Co., Memphis 1—See adv. p. 207	M	100	X		X	X	X	DT	C		X	X	H	FI						
Frank A. Conkling Co., Memphis 3	MW	15			X	X														P
Nickey Bros., Memphis 12	MW	12			X	X		D	C	X	XC		H							

EM—End Matched T.P. Flg. & Sheathing A—Appalachian SD—Sash & Door Cut Stock P—Plywood 1—Pine Mill, Mayo, Va. 2—Nosed Stepping and Finish
O—Other woods NS—Nosed stepping J—Jambs F—Finish A—Appalachian White Pine, Box Shook,
S—Specialist in Cedar PG—Plywood & Glued-up Stock R. R. Materials

Southern Pine, Cypress, Hardwoods, Specialties

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	Shortleaf Yellow Pine	Longleaf Yellow Pine	Cypress	Southern Hardwoods	Yard & Shed Stock	D—Dimension T—Timbers	L—Lath C—Cedar Closet Lining	Interior Trim & Mouldings	X—Pine Sdg. D—Drop Sdg. C—Cyp. Sdg. P—Poplar Sdg.	Flooring X—Pine. C—Cypress	H—Hardwood Flooring C—Hardwood Constr. Boards	F—Factory Lumber I—Industrial Cut Stock	X—Box Shook & Crating C—Crating only	K.D. Window & Door Frames	L—Log Cabin Siding K—Knotty Paneling	B—Boards R—Roofers	C—Car Material T—Treated Stock	Other
TENNESSEE—Continued																				
Phillips Wood Products Co., Memphis 4	W		X		X	X		DT	C		X		HC	I	X	X		BR		P
Riggs-Buttram Lbr. Co., Athens	M	12	X			X		DT										B		
D. M. Rose & Co., Knoxville	M								C	X	X		H	I		X				G
Shannon Bros. Lbr. Co., Memphis	M	14			X	X	X	T						F						
James E. Stark Co., Memphis 10	M	12			X	X	X	DT			C	C		FI						G
Vestal Lbr. & Mfg. Co., Knoxville—See adv. p. 32	M	40	X	X	X	X	X	T												
Woods Lbr. Co., Memphis—See adv. p. 16	MW	20			X	X		T												
TEXAS																				
Angelina County Lbr. Co., Keltys—See adv. p. 75	MW	40	X			X	X	DT	L	X	X						K		C	
Boetteher Lbr. Co., Huntsville	MW	24	X				X	DT		IT	X	X							C	
W. T. Carter & Bro., Houston	M	60	X			X	X	DT		X	X	X			C					FJ
Edens-Birch Lbr. Co., Corrigan	M	25	X	X		X	X													
Haslam Lbr. Co., Haslam	M	12	X			X	X	DT		X	X	X	H		X					F
Kirby Lbr. Corp., Houston—See adv. p. 73	MW	100	X		X	X	X	DT		X	X	X	H	I				B	C	
Sabine Lbr. Co., Houston	M	50	X			X	X	DT		X	X	X		FI	X					EM
Southern Pine Lbr. Co., Texarkana	M	90	X	X	X	X	X	DT		X	X	X	H	I	X		L	B	C	G
J. E. Stone Lbr. Co., Nacogdoches	M	30	X			X	X	DT		X	X	X			C				C	
T. O. Sutton & Sons, Chireno	M	10	X			X	X	DT			X	X						B		
Texas Creosoting Co., Orange—See adv. p. 53								T											T	CL
Tilford-Hunt Lbr. Co., Nacogdoches—See adv. p. 53	MW	18	X			X	X	DT			X	X		F						
VIRGINIA																				
Barnes Lbr. Corp., Charlottesville	M	39	X			X		DT		X		X	H	I		X				
M. T. Blassingham & Co. Inc., Norfolk	D*		X	X	X	X	X	DT		X	X	X	HC	FI	C	X	K	BR	CT	CL
Boydton Mfg. Co., Boydton	M	12	X			X		DT					H		X					
Burruss Land & Lbr. Co., Lynchburg	MW	65	X			X	X	DT						F				BR	C	S
Camp Mfg. Co., Franklin	M	30	X		X	X	X			X	X	X	H		X			BR		
Colonial Pine Co., Petersburg	M	10	X					D							X			BR		
Williams & McKeithan Lbr. Co., Lynchburg	MW	40	X	X	X	X	X	DT			X	X	C	F	X			BR		

F—Finish
J—Jambs
S—Shiplap
EM—End-Matched Y.P. Flg.
G—Glued-up Stock
P—Plywood
CL—Creosoted Lumber, Cross Arms, Piling, Poles, Ties.
D*—Distribution Yard

Ponderosa Pine, Sugar Pine, White Fir, Incense Cedar, Douglas Fir, Redwood

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	Ponderosa Pine	Sugar Pine	W—White Fir I—Incense Cedar	Douglas Fir (Inland)	Redwood	Yard and Shed Stock	D—Dimension T—Timbers	L—Lath P—S.R. Pickets	Mouldings	S—Bevel Siding F—Flooring	Factory Lumber	I—Industrial Cut Stock G—Glued-Up Stock	Sash and Door Cut Stock	Box Shook and Crating	K. D. Window and Dr. Frames	Sash, Doors, Screens	C—Log Cabin Siding K—Knotty Paneling	Other
ARIZONA																				
Navajo Tribal Sawmill, Window Rock	M	12	X					X	DT				X							
Saginaw & Manistee Lbr. Co., Flagstaff	M	45	X					X	D				X			X				
Southwest Lbr. Mills, Inc., McNary	M	100	X			X		X	D		X	S	X	I		X			K	IT
CALIFORNIA																				
Angels Box & Lbr. Co., Angels Camp	M	12	X	X	WI	X		X	DT				X							

IT—Interior Trim

Ponderosa Pine, Sugar Pine, White Fir, Incense Cedar, Douglas Fir, Redwood

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	Ponderosa Pine	Sugar Pine	W—White Fir I—Incense Cedar	Douglas Fir	Redwood	Yard and Shed Stock	D—Dimension T—Timbers	L—Lath P—S.R. Pickets	Mouldings	S—Bevel Siding F—Flooring	Factory Lumber	I—Industrial Cut Stock G—Glued-Up Stock	Sash and Door Cut Stock	Box Shook and Crating	K. D. Window & Door Frames	Sash, Doors, Screens	C—Log Cabin Siding K—Knotty Paneling	Other
CALIFORNIA—Continued																				
Byles-Jamison Lbr. Co., Box 1666, Fresno	M	15	X	X	W			X					X							
California Door Co., Diamond Spring	M	30	X	X	WI	X		X	D				X			X				
Calif. Redwood Distributors, Chicago 1, Ill.	MW	250					X	X	DT	LP	X	SF	X	IG					C	
Cal. Sugar & West. Pine Agcy., San Francisco—See adv. p. 79	W		X	X	WI	X		X	D		X		X	I	X	X				
Clover Valley Lbr. Co., Loyalton	M	40	X		W	X		X	DT		X		X			X				RT
Sam S. Crowley Lbr. Co., Red Bluff	M	15	X	X		X		X	D				X							
Deschutes Lbr. Co., Anderson	M	35	X	X	WI	X		X	D			S	X							
Diamond Match Co., Chico	M	52	X	X	WI	X		X	DT		X	S	X	IG	X	X	X	X	K	
[2]Dolbeer & Carson Lbr. Co., 465 Calif. St., San Francisco 4	M	40					X	X	DT		X	S	X						C	
[1]Hammond Lbr. Co., San Francisco 6	M	130					X	X	D		X	S								7
[2]Holmes Eureka Lbr. Co., San Francisco 4	M						X	X	DT		X	S	X							
Hughes Bros., Foresthill	M	9	X	X	WI	X		X	DT			SF	X							
Indian Head Lbr. Co., Pittville	M	12	X		I			X	D		X		X	I						
Kent Lbr. Co., San Francisco 4	W		X	X	X	X		X	D		X		X		X				CK	B
Lassen Lbr. & Box Co., San Francisco—See adv. p. 62	M	50	X		W			X			X		X			X				
Long-Bell Lbr. Co., Weed	M	100	X		W			X	D	L	X	S	X	IG	X	X	X	X	CK	OP
Michigan-California Lbr. Co., Camino—See adv. p. 13	M	25	X	X	WI	X		X					X			X				PL
Mt. Shasta Pine Mfg. Co., Mt. Shasta	M	20	X	X	W	X		X	D				X			X				
McCloud River Lbr. Co. (See Shevlin Pine Sales, Minneapolis)																				
Mt. Whitney Lbr. Co., Box 2946, Los Angeles	M	25	X	X	WI			X	DT	L			X	I	X					
R. D. Northcutt Lbr. Co., Redding	M	11	X			X		X	DT							X				
Northern Redwood Lbr. Co., Korbel	M	30				X	X	X	D				X							TS
[1]Pacific Lbr. Co., 100 Bush St., San Francisco 4	M	120					X	X	D		X	S								
Penberthy Lbr. Co., Los Angeles, Calif.—See adv. p. 76	W		X																	WM
Pickering Lbr. Corp., Standard	M	65	X	X	WI	X		X					X			X				
Pine Logging Co. of Calif., Box 1086, Fresno	MW	15	X	X	WI			X	D				X							
Quincy Lbr. Co., Inc., Quincy—See adv. p. 78	M	35	X	X	W	X		X	D		X		X			X			K	PL
Redwood Manufacturers Co., Pittsburg	W*		X	X		X	X	X	DT		X	S								4
Redwood Sales Co., San Francisco 4	MW						X	X	DT	LP	X	SF							C	
Sacramento Box & Lbr. Co., Box 1282, Sacramento 6	MW	35	X	X	WI	X		X	D				X			X				
Scott Lbr. Co., Inc., Burney	M	40	X	X	W	X		X	DT			SF	X							PL
Ralph L. Smith Lbr. Co., Canby (Sales K. C., Mo.)—See p. 14	MW	60	X		W			X	D		X	S	X	I	X	X				P
E. J. Stanton & Son, Los Angeles 11	W		X	X	W	X	X	X	D		X	SF	X						CK	56
Stokes Lbr. Co., San Francisco 5—See adv. p. 62	W		X	X	W	X	X	X	DT	L	X		X						K	
Tarter, Webster & Johnson, Inc., San Fran.—See adv. p. 71	MW		X	X	WI	X		X	DT		X	S	X			X				PL
Ukiah Pine Lbr. Co., Potter Valley	M	20	X	X	W			X	DT				X							RT
Union Lbr. Co., Crocker Bldg., San Francisco 4	MW	100	X	X	W	X	X	X	DT			SF	X	I					C	#
Wandling-Nathan Co., San Francisco 11—See adv. pp. 37-79	W		X	X	W	X	X	X	DT	L	X	SF	X	I						6
West Side Lbr. Co., Tuolumne	M	42	X	X	WI			X	D				X			X				PL
Winton Lbr. Sales Co. (See Minneapolis Listing)																				
A. K. Wilson Lbr. Co., Los Angeles	W		X	X			X	X	DT	LP	X	SF	X	I					C	
Wuichet Lbr. Co., Los Altos	W		X	X		W		X	D				X	I	X	X				PL
IDAHO																				
Atlas Tie Co., Coeur d'Alene	M	16	X		X	W	FL	X	DT											
Boise-Payette Lbr. Co. (See Weyerhaeuser, St. Paul)																				
Brown's Tie and Lbr. Co., McCall	M	19	X			WE	FL	X	DT			F	X						CK	

P—Plywood
6—Red Cedar Shingles and Douglas Fir Plywood
W*—Wholesale Distr. Yd.

RT—Railroad Ties
PL—Pattern Lumber
TS—Tank Stock
OP—Other Woods and Plywood

RS—Redwood Shingles
4—Redwood and Cedar Shingles and Douglas Fir Plywood
#—R.R. Ties, Redwood Shingles, Tank stock

B—Boards
56—Other Softwoods and Hardwoods, Red Cedar Shingles, Douglas Fir Plywood
7—Railroad Ties and Tank Stock
WM—White Mahogany

Ponderosa Pine, Sugar Pine, Idaho White Pine, White Fir, Engelmann Spruce, Fir and Larch

IDAHO—Continued	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	Ponderosa Pine	Sugar Pine	Idaho White Pine	W—White Fir E—Engelmann Spruce	F—Fir L—Larch	Yard & Shed Stock	D—Dimension T—Timbers	L—Lath P—SR Pickets	Mouldings	S—Bevel Siding F—Flooring	Factory Lumber	I—Industrial Stock G—Glued-up Stock	Sash & Door Cut Stock	Box Shook & Crating	K. D. Window & Door Frames	Sash, Doors & Screens	C—Log Cabin Siding K—Knotty Paneling	Other
Craig Mountain Lbr. Co., Winchester—See adv. p. 74	M	25	X				FL	X	D	L		SF	X							
Hallack and Howard Lbr. Co., Cascade	M	25	X			E	FL	X	D	L	X	FS								
Kaniksu Forest Products, Inc., Priest River	M	18	X		X	E	FL	X	DT	L										RC
McFarland-Brown Lbr. Co., Sandpoint	M	15			X	E	FL	X	D			S							K	RC
Pack River Lbr. Co., Sandpoint	M	20	X		X	E	FL	X	D		X	SF	X	I	X	X			K	RC
Potlatch Forests, Inc. (See Weyerhaeuser, St. Paul)																				
Russell & Pugh Lbr. Co., Springston—See adv. p. 76	M	18	X		X	W	F	X	DT	L	X	S	X							RC
St. Maries Lbr. Co., St. Maries	M	25	X		X	WE	FL	X	DT	L	X	SF	X						CK	RC
White Pine Lbr. Co., Orofino	M	18	X		X	W	FL	X	D			S							K	
Winton Lbr. Co. (See Minneapolis, Minn.)																				
ILLINOIS																				
Graham Lbr. Co., Chicago	W		X	X	X	E	FL	X	DT	L	X	SF	X	I	X	X		X	K	RC
Edward Hines Lbr. Co., Chicago 2—See adv. p. 377	MW	140	X	X	X	E	FL	X	DT	L	X	S	X	I	X				CK	O
Inland Lbr. Co., Chicago 2—See adv. p. 79	W					E		X												
Knudson & Mercer Lbr. Co., Chicago 4—See adv. p. 79	W		X	X	X		FL	X	DT	L	X	SF						X		O
Metropolitan Lbr. Co., Chicago 24—See adv. p. 43	MW		X	X	X	WE	FL	X	DT	L	X	S	X	IG		X			CK	O
Rinn-Scott Lbr. Co., Chicago 1—See adv. p. 70	W		X	X				X	DT		X	SF	X	IG	X	X	X	X		P
Wm. C. Schreiber Lbr. Co., Chicago 16	W		X	X	X	E	FL	X	D				X						K	P
Geo. J. Silbernagel, Chicago 3	W		X	X	X	WE	FL	X	DT	LP	X	SF	X	IG	X	X	X	X	CK	O
KANSAS																				
Frank Paxton Lbr. Co., Kansas City 3—See adv. p. 66	W		X	X	X	E	FL						X	I						P
MINNESOTA																				
Shevlin Pine Sales Co., Minneapolis—See adv. p. 58	M	300	X	X				X	D	LP	X	S	X		X	X			CK	
Weyerhaeuser Sales Co., St. Paul 1—See adv. pp. 34-35	M		X	X	X	WE	FL	X	DT	LP	X	SF	X	IG	X	X	X		CK	RC
Winton Lbr. Sales Co., Minneapolis 2	MW	100	X	X	X		F	X	D		X	SF	X			X			CK	WW
MISSOURI																				
W. T. Ferguson Lbr. Co., St. Louis 1—See adv. p. 58	MW	75	X	X	X	WE		X	DT				X							
Long-Bell Lbr. Co., Kansas City 6	MW		X			W		X	D	L	X	SF		IG	X	X	X	X		OP
Ralph L. Smith Lbr. Co., Kansas City—See adv. p. 14	MW	130	X	X	X	E	FL	X	D		X		X	I	X	X				P
MONTANA																				
Anaconda Copper Mining Co., Bonner—See adv. p. 46	M	100	X				FL	X	DT	L	X	SF	X	I		X			CK	
Kalispell Lbr. Co., Kalispell	MW	20	X			E	FL	X	DT		X	S								
Missoula White Pine Sash Co., Missoula	M	10	X			W		X	DT		X			I			X	S		WT
J. Neils Lbr. Co., Libby—See adv. p. 61	M	80	X		X	E	FL	X	DT	L	X	SF	X	I	X	X			CK	IT
Somers Lbr. Co., Somers	M	40	X			E	FL	X	D	L	X	S								
F. H. Stoltze Land & Lbr. Co., Columbia Falls	M	21			X	E	FL	X	DT	L	X	S							K	
NEW MEXICO																				
M. R. Prestridge Lbr. Co., Alamogordo	M	22	X				F	X	DT		X		X							
Southwest Lbr. Co., Alamogordo	M	24	X			W	F	X	DT	L	X	S				X				
Bernalillo Lbr. Co., Albuquerque	MW		X																	
OHIO																				
George N. Comfort Lbr. Co., Cleveland 14	W		X	X	X	WE	FL		DT	L	X	SF	X	I		X			CK	
Inter Lakes-Gulf Lbr. Co., Rocky River 16—See adv. p. 74	W		X		X	E	F	X	D			SF								M
OREGON																				
Alexander-Yawkey Lbr. Co., Prineville—See adv. p. 53	M	38	X					X	D		X	S	X	I		X			K	
American Box Corp., Lakeview	M	38	X					X	D	L	X	S	X	I		X			K	
Big Lakes Box Co., Klamath Falls	M	50	X					X	D	L	X	S	X	I		X			K	7

P—Plywood RC—Red Cedar O—Other Softwoods & Hardwoods PL—Pattern Lumber M—Myrtlewood
WW—Western White Spruce WT—Wrapped Interior Trim IT—Interior Trim 7—Linderman Jointed Stock

Ponderosa Pine, Sugar Pine, Idaho White Pine, White Fir, Engelmann Spruce, Fir and Larch

OREGON—Continued	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	Ponderosa Pine	Sugar Pine	Idaho White Pine	W—White Fir E—Engelmann Spruce F—Fir L—Larch	Yard & Shed Stock	D—Dimension T—Timbers	L—Lath P—SR Pickets	Mouldings	S—Bevel Siding F—Flooring	Factory Lumber	I—Industrial Stock G—Glued-up Stock	Sash & Door Cut Stock	Box Shook & Crating	K. D. Window & Door Frames	Sash, Doors & Screens	C—Log Cabin Siding K—Knotty Paneling	Other
Blue Mountain Mills, John Day	M	25	X				X	D				X			X				
Blue Mountain Mills, Ontario	M	25	X												X				
Brooks-Scanlon Lbr. Co., Bend	M	60	X				X	DT	LP	X	S	X	I	X	X			K	
Buzard-Burkhart Pine Co., Lakeview	M	20	X				X	D		X		X		X				K	
Collins Pondosa Lbr. Co., Pondosa	M	20	X				X	D			S	X		X					
Contact Lbr. Co., Portland 4	W		X	X	X	WE FL	X	DT	L	X	SF	X	IG	X	X	X		CK	IT
Crane Mills, Inc., Bly	M	15	X				X	D			S	X		X					
The Dalles Lbr. Co., The Dalles—See Metro Lbr. adv. p. 43	M	8	X			F	X	DT				X							
Austin Dodds Lbr. Co., Eugene	W					F		DT	L			X							
The Robert Dollar Co., Glendale	M	30	X	X		FL	X	DT	L			X							1
Ewauna Box Co., S. 6th St., Klamath Falls	M	75	X			W	X	D	LP	X	S	X	I	X	X			CK	7
Firpine Products Co., Portland	W		X	X		WE FL	X	DT		X	SF	X	IG	X	X	X	X	CK	
Fleishman Lbr. Co., Portland—See adv. p. 65	MW		X	X	X	WE FL	X	DT		X	SF	X	I	X					O
Gilchrist Timber Co., Gilchrist	M	50	X				X	D		X		X						K	
F. C. Goetz Lbr. Co., Medford	M	12		X								X							
Goose Lake Box Co.—Sales by White Pine Lbr. Dist., Reno, Nev.	M	15	X				X			X		X			X				
Heppner Lbr. Co., Heppner	M	15	X				X	D		X	S	X						K	
Herman Brothers Lbr. Co., Prospect	M	12	X	X			X					X							I
Edward Hines Lbr. Co. (See Chicago Listing)—See adv. p. 377																			
Ivory Pine Co., Klamath Falls	MW	20	X	X			X	D				X			X				
Klamath Basin Pine Mills Inc., Box 1051, Klamath Falls	M	50	X	X			X	D	L	X		X			X				
Kinzua Pine Mills Co., Kinzua—See adv. p. 31	MW	40	X			FL	X	D*	L	X	S		IG	X	X	X		CK	Y
Medford Corp., Medford—See adv. p. 15	M	85	X	X		W F	X	DT		X	SF	X	I					CK	
Mt. Emily Lbr. Co., La Grande—See adv. p. 75	M	50	X			FL	X	D		X	S	X	I	X	X			K	Y
Ochoco Lbr. Co., Prineville	M	35	X				X	D			S	X							
Oregon Lbr. Co., Baker—See adv. p. 57	M	35	X				X			X	SF		IG	X	X	X		K	
Oregon Trail Lbr. Co., The, Union	M	12	X			FL	X	D*				X							
Patrick Lbr. Co., Portland 5	W		X	X	X	WE FL	X	DT		X	S	X	I	X	X			CK	
Pelican Bay Lbr. Co., Klamath Falls	M	70	X				X	D	L	X	S	X			X			CK	
Pine Products Corp. (See Carl Soderberg Lbr., Spokane)																			
Ponderosa Mouldings, Inc., Redmond—See Metro. Lbr. adv. p. 43	M									X			I						IT
Schmitt Bros. Lbr. Co., Grants Pass	M	22	X	X		F	X	D				X							I
Shaw Lbr. Co., Klamath Falls	M	35	X				X	D				X							
R. L. Smith Lbr. Co., Klamath Falls (Sales K. C. Mo.)—p. 14	MW		X				X	D		X	S	X	I	X	X				P
So. Ore. Sugar Pine Co., Medford and Tiller	M	40		X	X	F	X					X							
Spalding & Son, Grants Pass	M	12	X	X		F	X					X							
Stoddard Lbr. Co., Baker	M	39	X			L	X		L	X	S	X						K	
Timber Products Co., Medford	MW	45	X	X		W F	X	DT	L	X	S	X	I	X	X			K	
Tite Knot Pine Mill, Redmond	M	30	X				X	D		X		X						K	
Van Deinse Lbr. Sales Corp., Portland 5—See adv. p. 68	MW		X	X	X	E FL	X	DT	L		SF	X	I					CK	
Warm Springs Lbr. Co., Warm Springs	M	30	X				X					X							
Weyerhaeuser Timber Co. (See St. Paul)																			
PENNSYLVANIA																			
Babcock Lbr. Co., Pittsburgh 19—See adv. p. 73	MW	40	X	X	X	WE FL	X	DT		X	SF	X	G		X				
Wm. Schuette Co., 239 4th Ave., Pittsburgh—See adv. p. 79	W		X	X	X	E FL				X	SF	X	IG		X	X			
SOUTH DAKOTA																			
Warren-Lamb Lbr. Co., Rapid City	M	14	X				X	D		X	SF		G		X			C	

I—Incense Cedar P—Plywood D*—Fir & Larch Only Y—Cut-to-Length Trim, Lawn & Porch Furniture 7—Linderman Jointed Stock RT—Railroad Ties IT—Interior Trim

Ponderosa Pine, Sugar Pine, Idaho White Pine, White Fir, Engelmann Spruce, Fir and Larch

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	Ponderosa Pine	Sugar Pine	Idaho White Pine	W—White Fir E—Engelmann Spruce	F—Fir L—Larch	Yard & Shed Stock	D—Dimension T—Timbers	L—Lath P—SR Pickets	Mouldings	S—Bevel Siding F—Flooring	Factory Lumber	I—Industrial Stock G—Glued-up Stock	Sash & Door Cut Stock	Box Shook & Crating	K. D. Window & Door Frames	Sash, Doors & Screens	C—Log Cabin Siding K—Knotty Paneling	Other
WASHINGTON																				
Biles-Coleman Lbr. Co., Omak—See adv. p. 141	M	48	X				FL				X			IG		X	X		K	WT
Bockmier Lbr. Co., Radio Cent. Bldg., Spokane	MW	20	X		X	E	FL	X	DT	L			X							
Cascade Lbr. Co., Yakima	M	65	X				F	X	DT			S	X			X				
Chelan Box & Mfg. Co., Chelan	M	24	X				F	X	DT				X			X				
Deer Park Pine Industry, Inc., Deer Park	M	40	X		X		FL	X	DT		X	SF	X	I	X	X	X		K	IT
Diamond Match Co., Newport	M	54	X		X	WE	FL	X	DT	L	X	SF	X						K	RC
Fred Draper Lbr. Co., Colville	M	12	X				FL	X	DT			SF	X							
Duffy Lbr. Co., O.N.B. Bldg., Spokane	MW	10	X	X	X	E	FL	X	D				X							
C. A. Harris & Son, Ardenvoir	M	7	X				F	X	DT			S	X			X				
Long Lake Lbr. Co., Spokane	M	48	X		X	WE	FL	X	DT	L	X	S	X	I			X		K	WT
Mauk Seattle Lbr. Co., Seattle 1—See adv. pp. 71-79	MW		X	X	X		FL	X	DT	L	X	SF	X	I		X			CK	IT
J. Neils Lbr. Co., Klickitat—See adv. p. 61	M	50	X				F	X	DT		X	SF	X	I	X	X			CK	
Nettleton Timber Co., Box 3305, Seattle 14	M				X			X												
Ohio Match Co., Box 115, Spokane	M	48			X	WE	FL	X	DT	L	X	S	X						K	
Peshastin Lbr. & Box Co., Peshastin	M	22	X		X	W	F	X	DT	L	X	SF	X	I		X			K	1
Schmitten Lbr. Co., Cashmere	M	15	X				F									X				
Carl Soderberg Lbr. Co., Spokane 8—See adv. p. 79	MW	40	X	X	X	E	FL	X	D		X	SF	X	I		X			CK	IT
Twin Harbors Lbr. Co., Aberdeen—See adv. p. 12	MW		X	X	X		FL	X	DT	LP	M	SF	X	I						O
Wales Lbr. Co., Spokane 8—See adv. p. 79	MW		X	X	X	E	FL	X	DT				X							RC
Western Pine Mfg. Co., Spokane 7—See adv. p. 49	M	50	X		X		FL	X	DT		X		X	IG	X	X	X	X	K	1
White Pine Sash Co., Spokane			X		X			X			X			IG		X	X	Sc	K	WT
Wm. Zosel Lbr. Co., Oroville	M	6	X				FL	X	DT							X				
WISCONSIN																				
Metropolitan Lbr. Co., Milwaukee—See adv. p. 43	MW		X	X	X	WE	FL	X	DT	L	X	S	X	IG	X	X			CK	O

1—Interior Trim, Furniture, Boxes & Specialty Items
P—Prefabrication and Processing
WT—Wrapped Interior Trim
IT—Interior Trim
RC—Red Cedar
O—Other Woods

Douglas Fir, West Coast Hemlock, Sitka Spruce, Western Red Cedar

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	D—Douglas Fir H—West Coast Hemlock	S—Sitka Spruce C—Western Red Cedar	Y—Yard Stock S—Shed Stock	D—Dimension T—Timbers	S—Select Structural Grades L—Long Timbers	M—Mouldings F—Flooring	S—Bevel Siding L—Log Cabin Siding	R—Red Cedar Shingles L—Lath	G—Gutter P—Plywood	S—Sash F—Frames W—Window & Door Stock	S—Shop Lumber I—Industrial Cut Stock	R—Rough Clears G—Glued-up Stock	B—Boat & Ship Lumber C—Car Material	T—Turning Squares L—Ladder Stock	B—Box Shook & Crating T—Tank, Pipe and Silo Stock	P—Poles, Piling T—Treated Stock	A—Airplane Stock K—Knotty Paneling	Other
CALIFORNIA																				
Benson Lbr. Co., San Diego 12	MW	22	DH	C	YS	DT	SL							R	B		B	P		
W. E. Cooper Whise. Lbr. Co., Los Angeles 13—See adv. p. 68	W		DH	SC	YS	DT	SL	MF		R		S		R						O
Pope & Talbot, Inc., San Francisco 4	MW	284	DH		YS	DT							I					T		O
E. K. Wood Lbr. Co., San Francisco 11	MW	50	DH	SC	YS	DT				L										
Wendling-Nathan Co., San Francisco—See adv. pp. 37-39	W		D	C	YS	DT		MF	S	RL	P		S	R				P	A	
ILLINOIS																				
Metropolitan Lbr. Co., Chicago 24—See adv. p. 43	MW		DH	SC	YS	DT														
Geo. J. Silbernagel, 8 So. Mich., Chicago	W		DH	SC	YS	DT	SL	MF	SL	RL	P	SF	SI	RG		TL	BT			O
Wm. C. Schreiber Lbr. Co., Chicago 16	W		DH	S	YS	D					P		S							O

O—Other Woods

Douglas Fir, West Coast Hemlock, Sitka Spruce, Western Red Cedar

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	D—Douglas Fir H—West Coast Hemlock	S—Sitka Spruce C—Western Red Cedar	Y—Yard Stock S—Shed Stock	D—Dimension T—Timbers	S—Select Structural Grades L—Long Timbers	M—Mouldings F—Flooring	S—Bevel Siding L—Log Cabin Siding	R—Red Cedar Shingles L—Lath	G—Gutter P—Plywood	S—Sash, F—Frames W—Window & Door Stock	S—Shop Lumber I—Industrial Cut Stock	R—Rough Clears G—Glued-up Stock	B—Boat & Ship Lumber C—Car Material	T—Turning Squares L—Ladder Stock	B—Box Shook & Crating T—Tank, Pipe and Silo Stock	P—Poles, Piling T—Treated Stock	A—Airplane Stock K—Knotty Paneling	O—Other
KANSAS																				
Frank Paxton Lbr. Co., Kansas City—See adv. p. 66	W		D	S							P		I							O
MINNESOTA																				
Weyerheuser Sales Co., St. Paul 1—See adv. pp. 34-35	M		DH	SC	YS	DT	SL	MF	SL	R	P	FW	SI	RG	BC		BT	T	K	
Winton Lbr. Sales Co., Minneapolis 2	MW	100	DH	C	YS	D		M	SL				S						K	O
MISSOURI																				
W. T. Ferguson Lbr. Co., St. Louis 1—See adv. p. 58	MW	75	DH	SC	YS	DT	SL	F	S	RL			SI		C		B	PT		O
Long-Bell Lbr. Co., Kansas City 6	MW		DH		YS	DT	SL	MF			P	SW	SI	RG	BC	TL	T	PT	A	DS
OREGON																				
Austin Dodds Lbr. Co., Eugene	W		DH		YS	DT	SL			RL			SI	R	BC	L	T		A	
Bohemia Lbr. Sales Co., Culp Creek	M	18	DH		Y	DT	SL					W	I	R	C	TL	T	P		
Booth-Kelly Lbr. Co., Eugene	M	50	DH		YS	DT	S	MF			P		S		BC					
Bradley Lbr. Co., Bradwood	M	22	H			DT								R			B			
Bridge Lbr. Co., Reedsport	M	22	D		Y	DT	S								C					
Carlton Mfg. Co., Carlton	M	24	DH		Y	DT														
Carnation Lbr. Co., Forest Grove	M	36	D		Y	DT	SL							R	BC					
Cobbs & Mitchell Co., Portland 5	M	60	DH	C	YS	DT	SL	M				W	S	R		L	T			
Contact Lbr. Co., Portland 4	W		DH	SC	YS	DT		M	SL	RL	P	FW	SI	G			B		K	O
Coos Bay Logging Co., No. Bend	M	65	DH		Y	DT									B					
The Dalles Lbr. Co., The Dalles—See Metro Lbr. adv. p. 43	M	8	D		YS	DT														
Dwyer Co., Portland 6	M	30	DH	C	YS	DT	SL	MF					S	R	BC	L	T			
Engle & Worth Lbr. Co., McMinnville	M	45	D	C		DT	SL						S	R	B	L	T		A	
Firpine Products Co., Portland	W		DH	SC	YS	DT	SL	MF				FW	SI	RG		L				
Fischer Lbr. Co., Marcola	M	30	D		YS	DT	SL	F					SI		C					
Fleishman Lbr. Co., Portland—See adv. p. 65	MW		DH	SC	YS	DT	SL	MF	S				SI							O
Foster Mills, Inc., Willamina	M	23	DH		Y	DT	SL						SI	R	BC	T	T	P	A	
Gardiner Lbr. Co., Gardiner	M	30	D		Y	DT	SL							R	B					
Giustina Bros. Lbr. Co., Eugene	M	30	DH		YS		SL	F					S	R	BC	TL	T		A	
Glenwood Lbr. Co., Glenwood	M	15	DH		Y	DT	S							R			T	P		
Griswold Lbr. Co., Portland 4—See adv. p. 77	MW	70	DH	C	YS	DT	S							R	C	T			A	
Hills Creek Lbr. Co., Jasper	M	18	DH		Y	DT	SL							R	BC	T	T	P		
Edward Hines Lbr. Co., Westfir—See adv. p. 377	M	60	DH		YS	DT	SL							R	BC		T			O
Hult Lbr. Co., Horton	M	18	D		Y	DT	S					W	S	R	BC	TL	T	P		
Ingham Lbr. Co., Glendale	M	37	D		YS	DT	SL						S	R	C					O
Jaymer Co., Hood River	M	27	DH	C	Y	DT	SL							R	C	TL	T	P		O
C. D. Johnson Lbr. Corp., Portland	M	150	DH	S	YS	DT	SL	M	SL		G		SI	R	BC	TL	BT		A	P
Kingsley Lbr. Co., Portland 9	M	36	DH		YS	DT	L							R		L	T			
Lausman Lbr. Co., Medford	W		D			DT														
L. H. L. Lumber Corp., Carlton	M	60	D		Y	DT	SL							R			T			
Long-Bell Lumber Co. (See Missouri Listing.)																				
Lorraine Valley Lbr. Co., Cottage Grove	M	40	D			DT	SL			L				R	C		T	P		
Medford Corp., Medford—See adv. p. 15	M	85	D		YS	DT	S	MF	SL				SI	R	C	L	T		K	
Mill City Mfg. Co., Portland	M	24	D		YS	DT	SL		S					R	C	L	T	P		
Morrill & Sturgeon Lbr. Co., Portland—See adv. p. 79	W		DH	SC	YS	DT	SL	MF	S	RL	G	SW	SI	R	BC	TL	T		AK	O
Multnomah Lbr. & Box Sales Co., Portland 1	M	30	D	S	YS	DT	S	F	S				S	R					A	N
New Grand Ronde Lbr. Co., Willamina	M	30	D		YS	DT	S						S	R	BC					
O'Brien-Gram Spruce Co., Astoria	M	23		S					S			W	SI	R	B	TL	B		A	
Oregon-American Lbr. Corp., Veronia—See adv. p. 62	M	100	DH		YS	DT	S	F	S				S	R	C					
Pacific National Sales Co., Tacoma—See adv. p. 79	W		DH	SC	YS	DT		MF	S											O

O—Other Woods N—Noble Fir DS—Doors & Screens P—Prefabricated Items PP—Ponderosa Pine

Douglas Fir, West Coast Hemlock, Sitka Spruce, Western Red Cedar

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	D—Douglas Fir H—West Coast Hemlock	S—Sitka Spruce C—Western Red Cedar	Y—Yard Stock S—Shed Stock	D—Dimension T—Timbers	S—Select Structural Grades L—Long Timbers	M—Mouldings F—Flooring	S—Bevel Siding L—Log Cabin Siding	R—Red Cedar Shingles L—Lath	G—Gutter P—Plywood	S—Sash, F—Frames W—Window & Door Stock	S—Shop Lumber I—Industrial Cut Stock	R—Rough Clears G—Glued-up Stock	B—Boat & Ship Lumber C—Car Material	T—Turning Squares L—Ladder Stock	B—Box Shook & Crating T—Tank, Pipe and Silo Stock	P—Poles, Piling T—Treated Stock	A—Airplane Stock K—Knotty Paneling	Other
OREGON—Continued																				
Patrick Lbr. Co., Portland 5	W		DH	SC	YS	DT	SL	MF	SL	L	G	W	SI	R	BC	TL	BT	P	AK	PP
Portland Lbr. Mills, Portland 8	M	48	D		Y	DT	SL						S	R	BC		T			
Port Orford Lbr. Co., Port Orford	M	36	D		Y	DT								R			T			
Prouty Lbr. & Box Co., Warrenton	M	60	D		YS	DT	SL	MF	S		G		S	R	BC	T	T	P	A	
Rosboro Lbr. Co., Springfield	M	50	DH	C	YS	DT	S	MF	SL		G		I	R	BC	L	T		A	O
Row River Lbr. Co., Portland 5	M	30	DH		Y	DT	SL						I	R	BC	L	T			
Santiam Lbr. Co., Div., Lebanon	M	30	D		Y	DT	S						I	R	BC		T			
Santiam Lbr. Co., Div., Sweet Home	M	30	D		Y	DT	SL						SI	R	BC	L	T			
Shaw Lbr. Co., Yamhill	M	18	DH	C	Y	DT	S						S	R			T			
Edw. J. Sherman Lbr. Sales, Portland 4—See adv. p. 79	W		DH	SC	YS	D		MF	S				SI							O
Stimson Lbr. Co., Forest Grove	M	45	D		YS	DT	S						S	R	C		T		A	O
Sullivan Lbr. Co., Portland	W		DH	SC	YS	DT	SL	MF	SL	RL			SI	R	BC	TL	T	PT		
Swede Basin Lbr. Co., Grants Pass	M	20	D		Y	DT	S		S				S	R	C					
Tiller Mill & Lbr. Co., Medford	M	10	DH			DT	S							R	C					
Van Deinse Lbr. Sales Corp., Portland 5—See adv. p. 68	MW		DH	SC	YS	DT		F	SL	RL		FW								O
Walters-Bushong Lbr. Co., Eugene	M	14	D		YS	DT	S							R	C					
Walton Lbr. Co., Walton	M	12	D		Y	DT	S							R	C		T			
Wauna Lbr. Co., Wauna	M	60	D		YS	DT	SL	MF			G		SI	R	BC	T	T	T	A	
West Oregon Lbr. Co., Portland 9	M	50	DH			D												T		
Willamette Valley Lbr. Co., Dallas	M	100	DH	C	YS	DT	SL	MF	S	R	G		SI	R	BC	TL	T	P	A	N
A. K. Wilson Lbr. Co., Portland 4	MW	100	DH	S	YS	DT	SL	MF			P			R	BC	T	T		A	
W. A. Woodard Lbr. Co., Cottage Grove	M	37	DH	C	YS	DT	S	MF				W	SI	R	C	TL	BT		A	X
WASHINGTON																				
Canyon Lbr. Co., Everett	M	36	H		YS	DT	S		SL			W	SI	R	C	T	B			
Clark County Lbr. Co., Vancouver	M	12	DH	S	YS			M					SI	R	C	TL			A	N
Colonial Cedar Co., Seattle—See adv. p. 232	M									R										CS
Columbia River Paper Mills, Vancouver	M	50	DH		YS	DT										L				
Defiance Lbr. Co., Tacoma	M	65	D		YS	DT	SL			L			S	R	BC	L			A	
Dubois Lbr. Co., Vancouver	M	15	D		Y	DT	SL								C					
Duncan Lbr. Co., Seattle 11—See adv. p. 79	W		DH	SC	YS	DT	SL	MF	S	R				R						
Eclipse Lbr. Co., Inc., Everett	M	55	DH	C	YS	DT	S	MF					SI	R	BC	L	T			
Gram Mfg. Co., Vancouver			DH	S				M	S				SI	R		L				
Gray Lbr. & Shingle Co., Seattle	MW	15	DH	SC	YS	DT	SL	MF	S	R				R	BC	L	T	P		
Grays Harbor Lbr. Co., Hoquiam	M	75	DH		S	DT	SL					W	S	R	BC	T	T		A	
Heidner & Co., Tacoma 1—See adv. p. 76	W		DH	SC	YS	DT	SL	MF	S		P		I		BC	TL	BT			
Wm. Hulbert Mill Co., Everett	M	33		C	YS			M	SL	R	G			R	B	T				Z
Karlen-Davis Co., Tacoma 1—See adv. p. 77	MW	50	DH	SC	YS	DT	S	F	S				I	G	BC					
Klement Timber Co., Fortson	MW	15	DH	C	YS	DT	SL	F					S		BC	T				1
Long-Bell Lumber Co., Longview	MW	500	DH		YS	DT	SL	MF	SL	L	GP	SW	SI	RG	BC	TL	T	PT	A	2
E. C. Miller Cedar Lbr. Co., Aberdeen	M	15		C	YS	DT		MF	SL	RL	G		S				T		K	
Mauk Seattle Lbr. Co., Seattle 1—See adv. pp. 71-79	MW		DH	SC	YS	DT	SL	MF	SL	RL	P	SW	SI	R	BC	TL	BT		K	O
Morrison Mill Co., Anacortes	M		DH	SC	YS	DT	SL	F					SI	R		TL	B		AK	
Mutual Lbr. Co., Bucoda	M	60	DH	C	YS	DT	S							R	BC					
Nettleton Timber Co., Seattle 14	M	50	DH	C	YS	DT	S	F		L					BC	L	T			□
North Plywood, Inc., Seattle	W		DH	SC	YS	DT					P		SI							

*—Port Orford Cedar
N—Noble Fir
#—Canadian White Spruce

△—Sash, Doors, Screens
†—Linderman Machine Stock
1—Soft Maple A.D. Dim. & Const. Bds.

Z—Glued-Up Dimension, Linderman Stock
2—Frames, Doors & Screens

O—Other Woods
CS—Cedar Shakes and Stained Shingles.
X—Kiln Dried Fir Plank and Small Timbers, No. 3 to Sel. Structural

Douglas Fir, West Coast Hemlock, Sitka Spruce, Western Red Cedar

	M—Manufacturer W—Wholesaler	Annual Capacity Million Feet	D—Douglas Fir H—West Coast Hemlock	S—Sitka Spruce C—Western Red Cedar	Y—Yard Stock S—Shed Stock	D—Dimension T—Timbers	S—Select Structural Grades L—Long Timbers	M—Mouldings F—Flooring	S—Bevel Siding L—Log Cabin Siding	R—Red Cedar Shingles L—Lath	G—Gutter P—Plywood	S—Sash F—Frames W—Window & Door Stock	S—Shop Lumber I—Industrial Cut Stock	R—Rough Clears G—Glued-up Stock	B—Boat & Ship Lumber C—Car Material	T—Turning Squares L—Ladder Stock	B—Box Shook & Crating T—Tank, Pipe and Silo Stock	P—Poles, Piling T—Treated Stock	A—Airplane Stock K—Knotty Paneling	0—Other
WASHINGTON—Continued																				
Polson Lbr. & Shingle Mills, Hoquiam	M	75	DH	S	YS	DT	S						S	R	C	L	BT		A	
Robinson Mfg. Co., Everett	M	75	D		YS	DT	S	M			GP	SW	SI	R	BC	TL	T		A	★
St. Paul & Tacoma Lbr. Co., Tacoma 2	M	100	DH	C	YS	DT	S	MF	SL	L	GP		I		BC		T			
Seattle Cedar Lbr. Mfg. Co., Seattle 7	M	45		C	Y			M	S	R					B		T			¶
Simpson Industries, Inc., Seattle 7	M	80	DH		YS	DT	S				P		I	RG	C					Z
Stimson Mill Co., Seattle 7—See adv. p. 74	MW	50	DH	C	YS	DT	S	F		L			S							
Tacoma Export Lbr. Co., Tacoma 1	M	30	D	C	Y	DT	S							R	B					
A. C. Tebb Lbr. Corp., Aberdeen	M	9	D	C							G									
Twin Harbor Lbr. Co., Aberdeen—See adv. p. 12	MW		DH	SC	YS	DT	SL	M	S	RL			SI		BC		T			O
Walton Lbr. Co., Everett	M	45	DH	S	YS	DT	S	MF	SL		GP	W	SI	R	BC	L	T		A	N
Washington Mfg. Co., Tacoma	M		D					M			G	F		G						U
Washington Veneer Co., Olympia	M	30	DH	C	Y	DT	S			L	P		S	R	B	T				
West Waterway Lbr. Co., Seattle 14	M	30	D	C		DT														
Weyerhaeuser Sales Co., (See St. Paul, Minn.)																				
Wheeler, Osgood Co., The, Tacoma 1—See adv. p. 127	M		D								P									¶
White River Lbr. Co., Enumclaw	M		DH		YS	DT	S	M	S				I	R	C	L	T			
White Star Lbr. Co., Whites	M	37	DH		YS	DT	SL	M		R	G	W	S		BC	TL	T	P	A	
Willapa Harbor Lbr. Mills, Raymond	M	100	DH	SC	YS	DT	S	MF	S		G	W	S	R	BC		T		A	
WISCONSIN																				
Metropolitan Lbr. Co., Milwaukee—See adv. p. 43	MW		DH	SC	YS	DT														
BRITISH COLUMBIA																				
Canadian Forest Products, Ltd., Vancouver	M	90	DH	C	YS	DT		MF		R	P		SI	R						
Canadian Western Lbr. Co., Vancouver																				
Goodwin Johnson, Ltd., Vancouver—See adv. p. 78			D	C														P		
Hammond Cedar Co., Hammond	M	40		C	S			MF	S	R										
H. R. MacMillan Co., Ltd., Vancouver																				
Robertson & Hackett Sawmill Co., Vancouver	M	35	DH	C	YS	DT	SL	MF	SL	R		W	SI	R	C	L			K	
Thurston-Flavelle Ltd., Port Moody—See adv. p. 237	M	30		C					S	RL										

0—Other Softwoods
□—Prefabrication and Processing

U—Cl. Fir Finish, Porch, Stairs, Hand Rails; Built-Up Columns

X—Doors, Sash, Special Woodwork
N—Noble Fir

★—Doors, Windows, Sash
¶—Complete Line House & Garage Doors

Hardwood Flooring and Other Items

	Oak	Maple	Beech	Birch	Gum	Pecan	Strip	Plank	Herringbone	Block	Factory Finished	Treated Flg. & Lumber	Pine Lumber	So. Hardwoods	Appal. Hardwoods	North. Hardwoods	Hardwood Trim	Cypress Trim	Pine Trim	Pine Flooring
Anchor Lbr. Co., Parkersburg, W. Va.	X	X	X	X		X	X			X		X			X					
Anderson-Tully Co., Memphis, Tenn.—See adv. p. 16	X		X			X	X	X					X	X						X
Arkansas Oak Flooring Co., Pine Bluff, Ark.	X		X			X	X	X	X					X			X			
Atlanta Oak Flooring Co., Atlanta, Ga.	X	X	X	X			X	X				X		X	X	X	X	X	X	
Babcock Lbr. Co., Pittsburgh 19—See adv. p. 73	X	X	X	X			X				X		X	X	X	X			X	X
P. M. Barger Lbr. Co., Statesville, N. C.	X	X	X	X	X		X			X	X		X	X	X	X	X	X	X	X
Barnes Lbr. Corp., Charlottesville, Va.	X				X		X		X					X			X	X	X	X
Blount Lbr. Co., Lacona, N. Y.		X	X	X			X													

Hardwood Flooring and Other Items

	Oak	Maple	Beech	Birch	Gum	Pecan	Strip	Plank	Herringbone	Block	Factory Finished	Treated Flg. & Lumber	Pine Lumber	So. Hardwoods	Appal. Hardwoods	North. Hardwoods	Hardwood Trim	Cypress Trim	Pine Trim	Pine Flooring
Boydton Mfg. Co., Boydton, Va.	X						X													
Bradley Lbr. Co., Warren, Ark.—See adv. p. 211	X		X			X	X			X	X		X	X			X	X	X	X
C. A. Briggs Lbr. & Mfg. Co., Scotdale, Pa.	X	X					X	X												
E. L. Bruce Co., Memphis, Tenn.—See adv. p. 207	X	X	X	X		X	X	X	X	X	X	X	X	X			X		X	X
Carr Lbr. Co., Pisgah Forest, N. C.	X	X					X								X					
Central Oak Products Co., Nashville, Tenn.	X	X	X				X	X						X	X					
Charleston Lbr. Co., Charleston, W. Va.	X						X													
Clarke County Lbr. Co., Thomasville, Ala.—See adv. p. 74	X	X	X	X	X	X	X				X		X	X		X	X		X	X
Colonial Hardwood Flooring Co., Hagerstown, Md.	X	X	X				X		X				X		X		X		X	X
Connor Lbr. and Land Co., Marshfield, Wis.—See adv. p. 11	X	X		X			X					X	X			X				
A. B. Cook Co., Malvern, Ark.	X				X		X						X	X			X	X		
Cotton & Hanlon, Odessa, N.Y.	X	X	X				X	X		X			X		X	X	X			
Crossett Lbr. Co., Crossett, Ark.	X						X					X	X	X					X	X
De Soto Hardwood Flooring Co., Memphis, Tenn.	X						X	X						X			X			
Dierks Lbr. & Coal Co., Kansas City 6, Mo.	X						X						X	X			X		X	X
Emporium Forestry Co., Conifer, N. Y.		X	X	X			X						X			X				X
Evans Hardwood Flooring Co., St. Louis, Mo.	X	X					X													
Exchange Sawmills Sales Co., Kansas City 6, Mo.	X						X						X	X					X	X
D. L. Fair Lbr. Co., Louisville, Miss.	X		X		X	X	X						X	X			X		X	X
M. B. Farrin Lbr. Co., Cincinnati, O.—See adv. p. 32	X	X	X	X	X		X	X	X	X	X	X			X					
W. T. Ferguson Lbr. Co., St. Louis 1, Mo.—See adv. p. 58	X	X			X		X				X	X	X	X					X	X
Fordyce Lbr. Co., Fordyce, Ark.	X						X					X	X	X			X	X	X	X
Frost Hardwood Floors, Inc., Shreveport, La.	X		X		X	X	X	X				X	X	X			X	X	X	X
Frost Lbr. Industries Inc., Shreveport, La.	X		X			X	X	X				X	X	X			X		X	X
Georgia Hardwood Lbr. Co., Augusta, Ga.—See adv. p. 16	X	X	X	X	X	X	X	X		X	X	X	X	X	X			X	X	X
Geo. C. Griffith Stave Co., Springfield, Mo.	X						X						X	X						
Hallett Mfg. Co., Mobile 2, Ala.	X				X		★						X	X			X	X	X	X
Harris Mfg. Co., Johnson City, Tenn.	X	X	X				X	X	X	X										
Holt Hardwood Co., Oconto, Wisc.—See adv. p. 208	X	X	X	X			X	X	X	X		X				X				
Kirby Lbr. Corp., Houston 1, Tex.—See adv. p. 73	X						X						X	X					X	X
A. H. Leathers Mfg. Co., Dickson, Tenn.	X		X				X													
Lightsey Bros., Miley, So. Car.—See adv. pp. 16-40	X	X			X		X						X	X					X	X
Long-Bell Lbr. Co., Kansas City 6, Mo.	X						X	X					X	X			X		X	X
Marsh Lbr. Co., Dover, Ohio	X	X	X				X	X								X	X		X	
McMinnville Mfg. Co., McMinnville, Tenn.	X	X	X				X										X			
Meadow River Lbr. Co., Rainelle, W. Va.—See adv. p. 32	X	X	X	X		X	X	X	X						X		X			
Memphis Hardwood Flooring Co., Memphis, Tenn.	X		X			X	X	X	X		X			X						
Merit Oak Flooring Co., Birmingham 1, Ala.	X		X				X													
Miller Bros. Co., Johnson City, Tenn.	X	X	X	X			X	X		X					X		X			
Missouri Floor Co., St. Louis, Mo.	X	X					X													
Mobile River Saw Mill Co., Mt. Vernon, Ala.	X						X								X					
Monterey Hardwood Flooring Co., Monterey, Tenn.	X	X	X				X													
Mower Lbr. Co., Charleston, W. Va.—See adv. pp. 32-66	X	X	X	X			X						X		X		X			
J. Natwick & Co., Baltimore, Md.	X	X					X								X					
Nickey Bros., Inc., Memphis, Tenn.	X	X	X	X		X	X	X						X	X	X	X	X	X	
North Branch Flooring Co., Chicago	X	X					X								X	X	X			
R. C. Owen Co., Hopkinsville, Ky.	X	X	X				X	X						X			X			

★—Plain End

*—Parquet

Hardwood Flooring and Other Items

	Oak	Maple	Beech	Birch	Gum	Pecan	Strip	Plank	Herringbone	Block	Factory Finished	Treated Flg. & Lumber	Pine Lumber	So. Hardwoods	Appal. Hardwoods	North. Hardwoods	Hardwood Trim	Cypress Trim	Pine Trim	Pine Flooring
Ozark Oak Flooring Co., Bismarck, Mo.	X						X													
Frank Paxton Lbr. Co., Kansas City, Kans.—See adv. p. 66	X	X	X	X		X	X	X		X	X			X						
Phillips Wood Products Co., Memphis 4, Tenn.	X	X	X	X	X	X		X			X		X	X			X			
Robbins Flooring Co., Rhinelander, Wis.	X	X	X	X			X		•	X										
D. M. Rose & Co., Knoxville 4, Tenn.	X	X	X				X	X							X		X			
Scotch Lbr. Co., Fulton, Ala.—See adv. p. 69	X						X						X	X					X	X
Southern Lbr. Co., Warren, Ark.	X		X				X						X	X					X	X
Southern Pine Lbr. Co., Texarkana, Tex.	X		X			X	X						X	X			X	X	X	X
Geo. J. Silbernagel, 8 So. Michigan, Chicago 3	X	X					X						X	X					X	X
E. A. Stewart Lbr. Co., Texarkana, Tex.	X						X							X						
Wm. C. Schreiber Lbr. Co., Chicago 16, Ill.	X	X		X			X						X		X					
Stowers Lbr. & Mfg. Co., Harriman, Tenn.	X						X													
Stuart Lbr. Corp., Stuart 10, Va.	X	X	X				X	X		X	X				X		X			
Virginia Oak Flooring Co., Pulaski, Va.	X						X		X	X			X[1]		X		X			
H. E. Webster Lbr. Co., Kansas City 6, Mo.	X	X	X				X						X	X						
J. W. Wells Lbr. Co., Menominee, Mich.		X		X			X													
Williams & Voris Lbr. Co., Chattanooga, Tenn.	X	X	X				X							X	X					
Wood-Mosaic Co., Inc., Louisville 9, Ky.—See adv. p. 32	X	X	X				X	X	X	X	X			X	X					
W. R. Wrape Stave Co., Little Rock, Ark.	X					X	X	X						X			X			
Yawkey-Bissell Corp., White Lake, Wis.	X	X		X			X	X	X				X			X				

*—Parquet

1—White Pine Only

PLANER AND JOINTER KNIVES

— — — also high speed knives and molding cutters for the woodworking industry.

TAYLOR-STILES & CO.
RIEGELSVILLE, NEW JERSEY

Western Agents:
Hall & Brown
W. W. Machine Co.
St. Louis, Mo.

American ALL STEEL Double Swivel **Load Binder**
(Goodyear Pattern)

For binding LUMBER, LOGS. Holds load firmly. Strongest . . . forged steel throughout . . . easiest to use . . . most practical and effective. Three sizes. Write for circular and full information.

"American" line of Logging Tools and Appliances is the best on the market. Catalog on request.

AMERICAN LOGGING TOOL CO., Evart, Mich.

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LUMBER TRUCK BEDS
Since 1918

Complete Beds Shipped KD
EASILY MOUNTED
Write for Catalog & Prices

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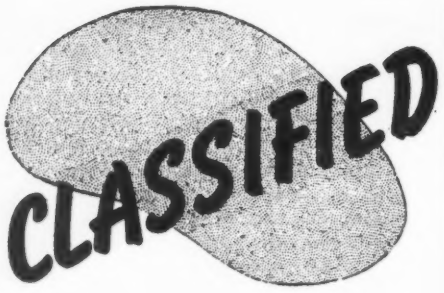

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HELP WANTED

Wanted Salesmen to sell Northern Minn. and Mich. lumber, both Softwoods & Hardwoods, on commission. Forest Products Co., N. W. Bank Bldg., Minneapolis, Minn.

Wanted: Lumber grader for Distributing Yard on Hardwoods and White Pine. Steady work, union scale. Addess E-42, American Lumberman.

WANTED—at once—window frame nailer man with moulder experience. Bench man. State age and wages wanted. THE A. G. SHARP LUMBER CO., 1224 Brittain Street, Youngstown 1, Ohio.

Bookkeeper-typist, with knowledge of retail building materials. Ellenville Lumber Co., Ellenville, New York.

WANTED: Cabinet makers, sash and door men, moulder and shaper operators to work in a modern, well equipped union shop. High wages paid with excellent living conditions available. Apply: A. Mason & Sons, Inc., Peru, New York.

MILL SUPERINTENDENT—Capable of taking full charge of mill, detailing of stock and special millwork. Estimating experience preferred but not necessary. RICHMOND LUMBER CO., RICHMOND, INDIANA.

EXPERIENCED LUMBER SALESMAN

Well established Chicago company has opening for experienced producing salesman, catering to industrial trade in carload and truckload lots. Must be aggressive and have ability to handle sales by mail and personal call. Good proposition for right man and splendid opportunity for advancement. Address H-22, American Lumberman, Inc.

Young man with some experience as assistant manager and accountant of retail lumber and coal company, with a view of management soon as possible. Splendid opportunity for right man. Address F-23, American Lumberman, Inc.

HELP WANTED

WANTED: Saw Filer and Sawyer 6 Ft. Band Mill, South Georgia. P. O. Box 1498—Atlanta, Georgia.

WANTED a band sawyer for right hand rig; eight foot mill, 14 inch gun, air dogs; excellent living conditions and satisfactory wages; must be fast and good grader, mostly pine, steady and indefinite job. No drunk need apply. Scotch Lumber Company, Fulton, Alabama.

MILLWORK SUPERINTENDENT

Want to employ, experienced Millwork Superintendent who can estimate and detail and bill. None but highly competent man need apply. Florida. Address K-36, American Lumberman, Inc.

LUMBER SALESMAN

Chicago. Calling on contractors and industrials. Give experience and full information. Permanent. Good opportunity old established lumber company. Confidential. Address K-35, American Lumberman, Inc.

WANTED: Experienced "Special Millwork" Estimator, permanent position, excellent future for capable man. Southeastern territory. Address K-38, American Lumberman, Inc.

WANTED: Experienced Planer, Matcher and Machine man; permanent position, steady employment, either salary or hourly rate; town of 30,000 in southwestern Pennsylvania. Address K-48, American Lumberman, Inc.

Man not over 35, experienced and thoroughly familiar with lumber and millwork. Opportunity to occupy key inside position with large Chicago retail lumber yard. State salary. Address K-56, American Lumberman, Inc.

Wanted: Experienced detailer and biller capable of listing millwork from plans, by old established architectural woodworking plant located in central Ohio. Permanent position for experienced, capable man. State age, training, experience and salary expected. Must have good references. Reply Box K-44, American Lumberman, Inc.

PLANING MILL SUPT. & MOULDER MAN

A top salary for capable man in a new mill equipped with Matcher—Moulder—Planers—Saws—All new modern machines. DOUGHERTY LUMBER CO., Cleveland 5, Ohio.

SITUATIONS WANTED

WANTED to represent manufacturer or wholesaler of West Coast species and Western Pines. Commission basis only. No drawing account necessary. Would invest some capital if desired. Have a large number of discount volume customers in Pennsylvania and adjacent territory. Have been selling these same accounts for more than twenty years. Also experienced in the sale and grading of Yellow Pine and Hardwoods. Write G-59 American Lumberman, Inc.

LUMBER YARD MANAGER

Thorough knowledge in lumber and building material. Able to design small homes and estimate. Know how to sell and meet public. Salary and commission. Address K-43, American Lumberman, Inc.

Position Wanted

Salesman with large following among dealers, architects and contractors in Upstate New York and part of New England desires to make a change. Confident he is in position to substantially increase your sales. With present connections several years, but for very good reasons a change is desirable. Address H-24, American Lumberman, Inc.

EXPERIENCED LUMBER SALESMAN

Want to represent manufacturer of Wisconsin or Michigan white pine and hardwoods, commission basis only, New England territory, long established trade best industrials and large retailers, and shipbuilders. High class northern references. Address K-31, American Lumberman, Inc.

Experienced man wishes to invest time and money in retail lumber or building material yard in Chicago area. Address J-53, American Lumberman, Inc.

PRODUCTION SUPERINTENDENT

Woodwork, custom or stock, 20 years' experience. Able to design, bill detail, cost, estimate. Available April 1. A-1 references. Address K-42, American Lumberman, Inc.

SITUATIONS WANTED

ACTIVE LUMBER SALESMAN—CONNECTICUT Aggressive salesman with large following among dealers in Connecticut specializing in Soft & Hardwood carload sales desires to associate with old established manufacturer and earn on commission according to ability. Permanent connection wanted, available immediately. North American Industries, 401 Chapel Street, New Haven, Conn.

WANTED: Position as manager of retail lumber, coal and building material yard. Have had 10 years' experience, 35 years old and am now employed as manager of yard, but would like to better my position if possible. Address K-49, American Lumberman, Inc.

BOOKKEEPER

With varied experience, also stenographer. For details address K-40, American Lumberman, Inc.

Wanted: Position as lumber yard manager in town of 5,000 to 15,000, preferably with opportunity, if satisfactory, of buying an interest. 18 years' experience manager lumber, feed, building materials. Address Box 324, Libertyville, Illinois.

Want position as manager millwork manufacturing or jobbing business. Write E-48, American Lumberman, Inc.

MILLWORK SUPERINTENDENT AND DRAFTSMAN. Years of experience high class detailed millwork. Good producer. A-1 Reference. Address B-40, American Lumberman.

LUMBER & DIMENSION WANTED

LUMBER AND LOGS WANTED

Southern Hardwoods:
50,000' No. 1 Common and Better, Pln or Qtd Sap Gum.
50,000' No. 1 Common and Better, Pln or Qtd Black Gum.
50,000' No. 1 Common and Better, Tupelo.
50,000' No. 1 Common and Better, Red Oak.
50% 4/4", 25% 5/4", 25% 8/4".
To be NHLA inspected for buyer's account.
Appalachian Hardwoods:
150,000' No. 1 Common and Better, Pln Red Oak.
150,000' No. 1 Common and Better, Pln White Oak.
50% 4/4", 25% 5/4", 25% 8/4".
To be NHLA inspected for buyer's account.
500,000' Oak Switch Ties 6"x10".
100,000' Oak Car Material.

ERNEST SEIDELMANN CORP.
Woolworth Bldg., New York 7, N. Y.

Retail yard 25 years in business wants softwood lumber, Yellow Pine, Ponderosa, Fir, White Pine, Hemlock, green or dry, small or large mill stock. Address Box 662, Saginaw, Michigan.

Dear Lumber Mill:—
Will you please help us out of our dilemma by accepting our orders for the following stock. We'll take delivery subject to your convenience, only PLEASE take our order, regardless of what your price may be

Width	Length	Width	Length
6¼"	x 17¾"	8¾"	x 16"
6¼"	x 13½"	8¾"	x 18"
6¾"	x 13½"	8¾"	x 21"
6¾"	x 21"	8¾"	x 24"
8¼"	x 16"	8¾"	x 25¾"
8¼"	x 18"	8¾"	x 29"
8¼"	x 24"	9¼"	x 20"
11¼"	x 18"	9¼"	x 29"

⅛" Plywood, Basswood, Poplar and/or Gum; carloads.

Above listed cut stock must be manufactured from a kiln-dried, clear, light weight, soft textured Western Pine, and/or Basswood; EVEN THICKNESS, SQUARELY CUT AND EQUALIZED to 1/32" tolerance; D2S to 9/32" thickness; glued-up stock preferred, if available. We'll take delivery of a car per day or any quantity or sizes you may care to furnish. We shall be looking forward hopefully to your favorable response.

Very truly yours,
Address G-53 American Lumberman, Inc.

Wanted to Buy
in Mixed Carloads of Following:
Doors and Window Trim in Sets
Mouldings—8000 Series
Above YP—WPP—Fir or Redwood
Window Frames, WPP
Doors—WPP or Fir
Plywood—Fir
Flooring—Oak, Fir & WPP
Stirling Lumber Company
Pittsburgh 21, Penna.